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ABSTRACT

This report describes a teacher training program which is based on an analysis of the inquiry process. The first chapter presents an operational construct of the inquiry process; method of program development and assessment through a phase analysis system; and a model for the structure of committees involved in program design, implementation, and assessment. The inquiry process is divided into five functions--conceptual, qualitative, procedural, suppositional, and evaluative--and each of the functions is related to the sensory, affective, and cognitive domains, yielding a total of 15 inquiry processes. The second chapter is an analysis of American cultural modes of response isolated into the 15 inquiry categories. The modes of response were determined by an analysis of 2,400 magazine advertisements. The third chapter is an open letter to parents exhorting them to interact with their children in ways that reflect an understanding of various inquiry processes. Chapter 4 lists children's books according to the inquiry process to which they relate. Chapter 5 sketches the history of the research underlying the development of the program, as well as the implementation and assessment of the program. (HMD)

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LENSES FOR PERFORMANCE INQUIRY

by

Robert C. Burkhart

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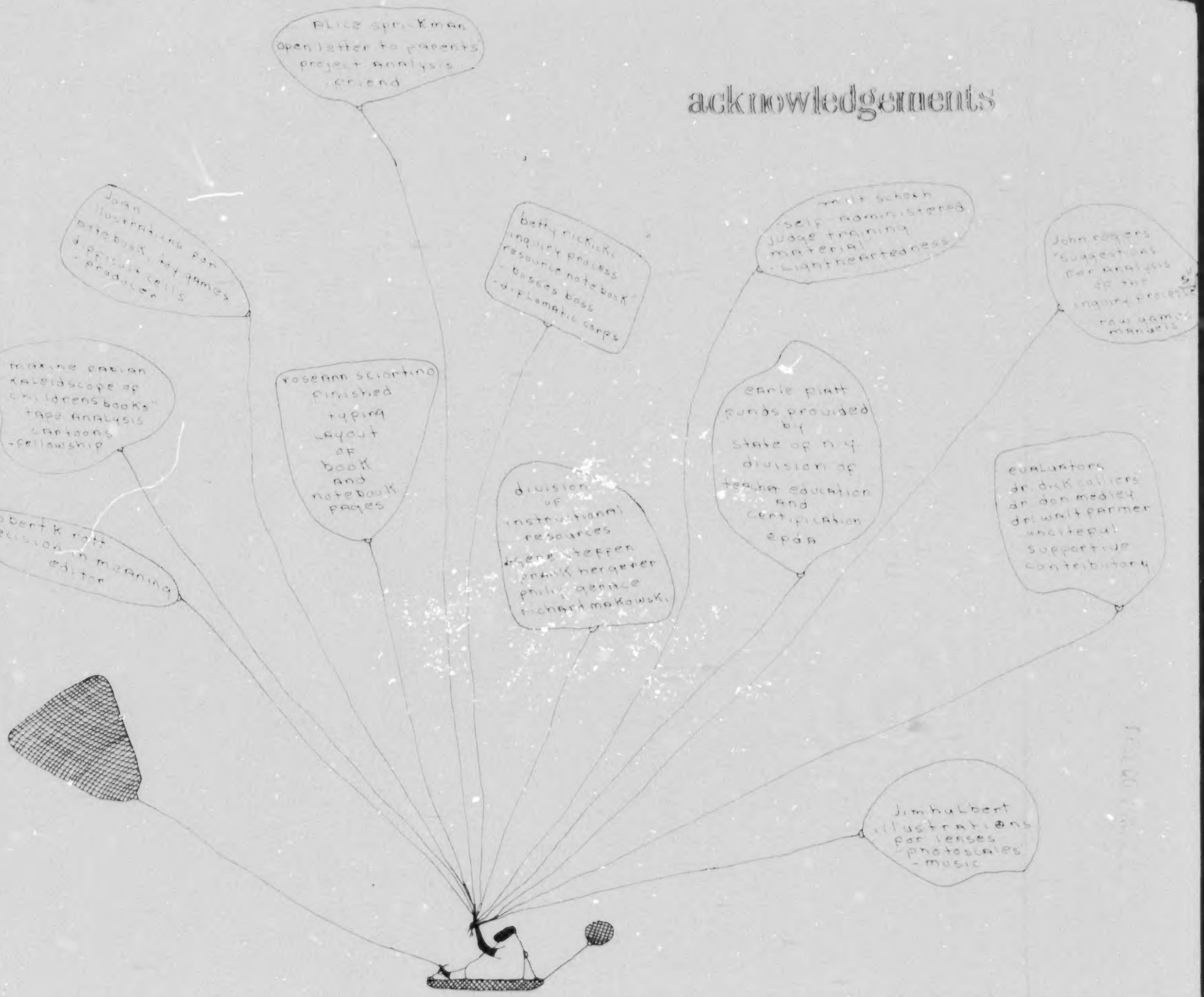

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AN APPROACH TO PERFORMANCE EDUCATION: Research and Program Development

Basic Assumptions

1. Evaluative skills are sorely needed in a society growing increasingly complex.
2. All inquiry processes essential to the attainment of satisfactory life styles should be provided by the schools of our nation.
3. Because certain elements of the inquiry processes apply across all content areas, these process elements can be appraised in relation to students, teachers, and curricula.
4. The absence of content dealing with inquiry processes constitutes a major deficiency in the curricula of many present-day schools.*
5. This deficiency occurs not only in curricula of our schools but also in the context and fabric of our culture. Unless this situation is remedied, participatory democracy cannot function well and critical problems cannot be evaluated.
6. What is needed in the seventies are the options of inquiry that we have lacked in the sixties. This decade needs to be one of evaluative dialogue.

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*Robert K. Rott and R. R. Allen, The Nature of Critical Thinking, Theoretical Paper No. 20, Wisconsin Research and Development Center for Cognitive Learning, The University of Wisconsin (Madison), May, 1969.

CHAPTER ONE

LENSES FOR PERFORMANCE INQUIRY

By Robert C. Burkhart

Paradoxes of Freedom

Consider the following statements:
To know is not to be educated.
To act even rightly, but unknowingly, is not to be educated.
To use knowledge of performance as a basis for determining our actions is to be educated.

Youth and many others today will no longer accept the belief that "to know or to be informed" is to be educated. So the students in our school systems from primary school through graduate school reject this form of education as both boring and irrelevant. But our society also rejects in large numbers the concept that action by students and faculty is, in itself, a worthwhile form of education. Political action cannot be the role of a public educational institution. Neither "being informed" nor "being capable of action" is any longer an acceptable form of education to many of us. These alternatives seem particularly undesirable since those now advocating these positions are locked in a conflict which appears to be rapidly destroying our educational system through their polarizations. A unifying alternative is a synthesis of these two ideas. It is the concept that to use knowledge of performance as a basis for action is to be educated. Here the test is to determine whether our learning enables us to utilize knowledge

so as to improve the quality of our lives and those of others. We insist that knowledge work for us and expand the range of our lives' possibilities. This more inclusive concept incorporates and significantly changes these two prevailing doctrines. It also constitutes the basis for Performance Education for the individualization of our cultural contributions. Although Performance Education is a necessary direction for today's schools, it is not a readily appreciated system.

What then does Performance Education offer that would encourage acceptance by those holding prevailing counter views? It offers the concept that the reason for knowing is to be free. Its premise is that a person who does not understand the basis for his action, or does not have the means to envision alternatives, has not been educated for freedom of choice. If we cannot by choice be other than we are, we are not free.

The use of knowledge as a basis for action is our only means to gain the freedom necessary for making individual contributions to our culture. Increased freedom of choice is a reason of sufficient magnitude to justify adopting Performance Education as a primary guideline in the formulation of educational policies and in the evaluation of programs developed in its name.

If freedom is our purpose, why is it that so often when we discuss Performance Education, the terms "accountability" and "assessment" are employed? Won't these forms of behavior diminish our freedom rather than increase it? I believe they do not restrict our freedom. Rather they represent signs of freedom.

Performance Education and freedom of choice go hand in hand. When a pool player picks up a cue and nonchalantly shoots a ball into a side pocket,

his buddies might respond, "What's so great about that? You didn't call your shot!" They react differently when he does call his shot and makes it. They know at this point that he is accountable. He may be assessed in terms of performance achieved. Note: our assessment here is of the performance not of the person. Now if he is a professional player, he will have available to him a broad range of alternatives from which he is free to select. He has more shots at his disposal than are available to less experienced players. Because he possesses the skills required and knows the problems involved, he can make decisions that we as casual or novice players could not possibly make. The professional has more freedom in the form of more available alternative choices.

For example, classroom teachers typically engage in about five forms of inquiry with their students. We have developed and tested with 300 teachers, in two school districts, a system that enables them to engage in 12 to 15 types of inquiry activity. This knowledge of 15 alternative forms of instruction, some of which are associated with creativity, enables teachers to choose consciously those processes that appear to be most needed or stimulating for the learning of their students. Such teachers possess increased competency because they can "call their shots" according to the specific learning processes involved and make them. More important, because of this knowledge, they are not locked into the present system by the codes or habits of existing practice. Freedom of this kind can never be given. It must be earned through becoming accountable. Freedom here is the result of continual self-assessment. Freedom of this kind can be a unifying purpose rather than a polarizing agent.

Lenses for Performance Inquiry Processes

There is no complete explanation of a transformative idea. Since we[1] first conceived of the Performance Inquiry System, it has affected our views, and as a result, we do not see the world around us as we did before. An idea that changes our views acts like a telescope or microscope and changes our ideas of what is relevant in the world. As with a vital individual, a transformative idea has different meanings to different people; it grows and changes with each new problem. Meeting one is rather like being introduced to a new personality who makes his presence felt in the environment through what his viewpoint contributes. With new viewpoints, we can perceive gaps in a universe that otherwise seems complete.

To perceive a gap is to have vision extending beyond the boundaries of that which is obvious. This kind of vision extends beyond the immediate to the underlying essentials that educators most need and most value. Any idea that improves performance in ways most needed and most valued is worthy of implementation.

If you look at an ordinary piece of plane glass, you know that it will not enable you to see new things. However, if it has been treated optically, ground and shaped as a lens, it will. A lens is ground according to a formula which is an abstraction for the determination of focus, i.e. a field of view or vision. Although the abstraction is not the field of vision itself, it is

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[1] We here represents the staff of the Teacher-Learning Center: Bob Burkhart, Jann Rogers, and Alice Sprickman.

the means whereby we are enabled to bring into focus that field of view necessary or pertinent to the problem at hand.

The purpose in presenting our idea is not only to indicate the formula as an abstraction, but also to indicate the new kinds of visualization that become available. In so doing, we shall be describing the anatomy of the communication problem and the criterion problem.

THE IDEA

Some things are more difficult to perceive than others, and among these are mental functions. We have attempted to build a set of abstractions, which like lenses will provide the means to identify a variety of mental functions in terms of behavior. The lenses we are creating cut some things out of our vision and bring others into focus. Through each lens we can see a specific way in which a person is behaving. However, where a gap in a person's mental processes exists, we may find that there is no behavior to be seen. These lenses allow us to see at least five major inquiry processes or ways in which people need to be able to perform, think, or function. These processes occur in at least three different fields of vision: Sensory, Affective and Cognitive.[1] (See Chart 1, Inquiry Process Grid.) The basis of the five inquiry processes is frequency of occurrence rather than a hierarchical scheme.

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[1]We use the term "cognitive" in a more limited way because we feel it needs distinction from affective and sensory kinds of behavior. "Cognitive," as defined in the grid, pertains to principles, rules, and ideas -- not to emotional or sensory events.

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CHART 1

INQUIRY PROCESS GRID *

	CONCEPTUAL - WHAT	QUALITATIVE - WHICH	PROCEDURAL - HOW	SYPPOSITIONAL - IF/THEN	EVALUATIVE - WHY
SENSORY dealing with observable input gathered through the five senses	Perceiving Generic Question: "What is the name?" Function: Denotation Means: Sense, notice Ends: Identify, label	Discriminating Generic Question: "Which is which?" Function: Differentiation Means: Compare, measure Ends: Separate, order by a difference	Doing Generic Question: "How can I do that?" Function: Action Means: Try, attempt Ends: Experience, sense	Relating Generic Question: "If these are alike, then in what context?" Function: Association Means: Liken, connect Ends: Associate, relate	Seeking (Rating) Generic Question: "Why is it reasonable?" Function: Justification Means: Consider, support Ends: Establish, justify
AFFECTIVE dealing with emotions or attitudes	Preferring Generic Question: "What do I like (not like)?" Function: Connotation Means: Respond, feel Ends: Like, favor, dislike, ignore	Appreciating Generic Question: "Which is worthy? (or unworthy) Function: Recognition Means: Estimate, qualify Ends: Recognize, highlight	Influencing Generic Question: "How can I control? Function: Causation Means: Insist, flatter Ends: Persuade, motivate	Empathizing Generic Question: "If I felt as it did, then?" Function: Identification (internal) Means: Assume, personify, identify with Ends: Envision, internalize	Valuing Generic Question: "Why is it right?" Function: Decision Means: Identify a value Ends: As reason for deciding
COGNITIVE dealing with rules, principles, definitions governing an idea	Comprehending Generic Question: "What will define that?" Function: Attribution Means: Know, generalize Ends: Concentualize, categorize	Analyzing Generic Question: "Which is essential?" Function: Explanation Means: Examine, test Ends: Answer, conclude	Applying Generic Question: "How does it function?" Function: Operation Means: Employ, systematize Ends: Operate, complete	Transforming Generic Question: "If this is a new viewpoint, what is the new meaning like?" Function: Interpretation Means: Transfer, symbolize Ends: Represent, signify	Synthesizing Generic Question: "Why is it more inclusive?" Function: Unification Means: Include, combine, (antithesis-thesis-synthesis) Ends: Encompass, incorporate
	Must build a library of concepts about the subject matter or content.	Must develop distinctions which clarify an object, event, attitude, idea, or property.	Must pertain to methods of attempting to make something work.	Must involve a change of viewpoint which may be original.	Must state reasons underlying a choice, application, selection, or distinction about an object.
	FLUENCY IN IDEAS	CLARITY IN RELATIONSHIPS	FLEXIBILITY IN METHODS	IMAGINATION IN VIEWPOINTS	ADEQUACY IN RATIONALE

*Refer to Chapter 6 for theoretical foundations of the Grid: involving ten years of research in the development of this operational construct by Robert C. Burkhart.

The Sensory field of vision deals with information which is made available through the sense organs. Sensory phenomena seem tangible, while Affective phenomena are quite the opposite. Feelings are never really visible to the naked eye; rather, they occur within the interior of man and are expressed through his attitudes. The Cognitive dimension of reality is even more remote and more difficult to see because it deals with our knowledge of the principles that govern our experiences, and not simply with the experience itself. Here, in fact, we are thinking of things abstractly. The Cognitive field of vision is totally intellectual in substance. It is the product of man's ideas rather than of his sense organs or his affective self. The Sensory, the Affective and the Cognitive domains constitute three radically different modes of consciousness. They all have one thing in common, however. They are produced by referents that are available to us if we look for them.

The first inquiry process is the most traditional -- the Conceptual: its sensory component is perceiving, the affective component is preferring, and its cognitive component is comprehending. Taken together they result in conceptual enrichment, providing a basis for fluency in ideas.

The second inquiry process is the Qualitative: the sensory component is discriminating, the affective is appreciating, and the cognitive is analyzing. Taken together they result in greater clarity in relationships.

The third inquiry process is the Procedural: the sensory component is doing, the affective is influencing, and the cognitive is applying. Taken together they lead to flexibility in methods.

The fourth inquiry process is Suppositional: the sensory component is

relating, the affective is empathizing and the cognitive is transforming. Together they provide a basis for imagination in viewpoints.

The fifth inquiry process is that of the learner's Evaluative capacities: the sensory capacity is scaling, the affective capacity is valuing, and the cognitive capacity is synthesizing. When combined, they provide a basis for adequacy in rationale.

Although these modes of consciousness represent three different views of the world, they are all part of the same universe. If our knowledge of reality is to be reliable, it must take into account these three different aspects of any single experience. The problem of reliability is in part the problem of achieving congruity. Thus, it is essential that we put together as much information from the different fields of vision as possible. Then we are able to build an inclusive idea of what our experiences mean. If information from one field of vision is left out, our understanding is likely to be questionable from that point of view. The unifying factor that will allow us to establish a broadly based viewpoint is the *range of inquiry processes* we employ to screen the information coming to us from these three sources.

The key to our processing of this information is the form of the question that we ask, or the problem we desire to resolve. The questions we ask constitute the determiners of the information from our experiences that we receive through them as inquiry lenses. To be educated for full mental functioning, man needs to be able to employ all five of these lenses in order to solve the problems in his universe.

The first questioning process is Conceptual, and it is concerned with

the building of concepts -- information about *what* things are. The second process is Qualitative and involves the development of distinctions relating to *which* is which, or *which* is worthy or essential. Third is the Procedural area of inquiry. Like the others, it also cuts across the three domains and it is concerned with *how* things can be treated. It is *methodological*. The next area is Suppositional. In this area information is put into an *if/then* context, and problems are handled by supposing about them and changing one's *viewpoint* toward them. The last process is the Evaluative and deals with question form *why*. Here, the order, pattern, or rationale for ideas and criteria for decisions are handled. If any one of these inquiry processes is omitted from our repertoire, reality sources are incomplete and it is likely that we will be unable to cope adequately with everyday problems. Thus, we conceive the responsibility of the education system to be one that provides us with opportunities to perform the full range of functions necessary for inquiring about our experience. When we look at learning in this way, serious gaps in the repertoire of available inquiry processes become evident. With little exception, it is clear that the schools are not providing opportunities for students to perform in these critical ways.

We have presented a formula (the Grid). It constitutes the abstractions governing formulation of five fields of vision. Like any abstraction, the Grid itself does not convey immediately a concrete picture of the results of its application to students, teachers, and curricula. It does, however, enable us to perceive as through a lens, approaches we haven't noticed before, both as to their presence and their absence. By such means, we can develop a more inclusive approach to understanding the essentials of

job performance possibilities. The idea will have become transformative if it enables us to perceive new choices within everyday experience. We feel strongly that use of the Grid will encourage constructive educational change in a way that is a synthesis of existing educational alternatives.

This approach enables us to determine the inclusiveness of the ways in which we are dealing with our problem. One test of inclusiveness is "Are we asking *questions* which will allow us to get a comprehensive understanding of a problem?" The second test of inclusiveness is "Are we developing *data* within a sufficiently wide range of resources to provide a depth of understanding sufficient to encompass the problem and suggest its solution?" These two tests of inclusiveness (questions and data) constitute criteria sources for the determination of the adequacy of a plan of action. Recently, two different plans of actions have been drawn to our attention, both of which appear to have communicative value because of their strength in these respects. The first is the report of the presidential commission on the summer riots in American cities. Note the type of question to which the report addresses itself, *and* the order of the questions that represent the structure of the report. In essence, the questions are:

What happened? (Conceptual)

Which factors appear to be causes? (Qualitative)

Why did these conditions arise? (Evaluative)

If this is the problem, what do you suppose we could do? (Suppositional)

How should we do what needs to be done? (Procedural)

Within this broad framework, the commission addressed itself to seeking

depth of information as a basis for forming their answers. They first pictured in great detail precisely what had taken place on an almost minute-to-minute basis. This phase reported the *sensory* information which was available. On the basis of this sensory information, they did a *cognitive* analysis of the kinds of patterns that did set off the riots. Then, in dealing with the long-term basis of the problem and its needed solutions, they discussed the *affective* reasons for the riots, including not only the causes for poverty, but also man's need for dignity. Enormous communication impact came to their report because they utilized many lenses for visualization as a basis for our identifying with their recommendations. The structure of their approach was then an inclusive one.

We wonder how inclusive most education programs are in these respects. But even when a program is an inclusive one, the way in which instruction is carried out may leave large gaps. This situation is evident in the problems of beginning teachers. The types of questions which they ask are likely to be narrow in focus unless their attention is brought to a more inclusive format. The usual classes we see are characterized by instruction involving mainly "what" or "which" processes and seldom "how," "if/then" and "why" processes in student-teacher interactions. This can be seen in the lesson plans that teachers develop and submit, which, over a period of time, often appear to concentrate in the same few areas of inquiry.

When we visit the classrooms of these teachers, we find repeatedly that they leave out of their plans any provisions for evaluation, which is the inquiry process most often missing. Within any comprehensive lesson or lesson unit, usually all five kinds of these inquiry levels need to be dealt

with by means of congruent questions. That is, students need to know *what* the subject or topic of the lesson is, and in conceiving of *which* are the essential elements in the problems to be solved, it helps if they have *sensory* and *affective* experiences as the basis for their *cognitive* understanding. The academic atmosphere which occurs when this does *not* happen is one which lacks student involvement.

If a teacher effectively introduces a topic, there is an almost inevitable need for associated learning *procedures*, "*How* are you going to go about doing this?" If the teacher states these cognitively, they are not likely to be understood. They need to be demonstrated in *sensory* terms, and the student needs to be given *affective* reinforcement during the process of employing them. Even when all this occurs, such lessons have a routine meaning to the student unless the teacher is able to develop some fresh *viewpoints* toward the concepts and the procedures that are to be learned. The format of lessons which lack *suppositional* content is that of an *exercise* rather than an *inquiry*. When lessons are put into an *if/then* context for problem-solving, an atmosphere of discovery may be achieved. All of this is of little avail so far as learning is concerned if none of these efforts are evaluated.

Evaluation requires systematic *pre-lesson* statements of *objectives*. Previous to formulating the lesson, the teacher needs to establish *learning criteria* as guidelines for himself and for his students. These criteria need to have not only sensory and cognitive substance, but need to suggest that there are important affective values for the student inherent within the activity. These are the things that a teacher needs to learn to do, and they

are distinctions about which he can be taught to make self-assessments.[1]

Fundamental to all of these objectives is the development for both student and teacher of an operational understanding of the Inquiry Process. Usually only half of this process is experienced by the child because the teacher and the parent generally ask questions, and the pupil or the child generally does the answering. Very early in life, children and pupils learn to be answerers first in the home and then at school, continuing through college. The primary problem in training teachers in college is to change them from answerers to questioners,[2] but not the kind of questioners who aim merely to get answers from their pupils. We need to learn to establish educational situations that will make the entire process of inquiry a part of students' habits of response rather than half of it, particularly the answer half. This form of teacher-training is one that can be seen in the special educational areas, such as that of working with children who have speech problems in which the teacher is trained as a research practitioner.

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[1] A research report by Burkhart on some findings concerned with teacher-learning behavior according to this system is included in the book, Calvin Taylor, Climate for Creativity, Pergamon Publishing Company, Elmsford, New York, Chapter Three, "Dynamic Dimensions of Teacher Learning," 1970.

[2] Robert C. Burkhart and Hugh Neil, Identity and Teacher Learning, (Scranton, Pennsylvania: International Textbook Company, 1968). Refer for further illustration and analysis of the way that questions relate to a teacher's development.

The teacher's role is both to help the student and to develop methods helpful to other teachers in the future. Diagnostic activity inserts some element of inventiveness and research into education as being role expectations for instructional personnel. These expectations resulted in a form of self-confidence for our student teachers as they realized they could both analyze and control their own and their students' behavior in accordance with students needs as the gaps became evident. This is the value of developing a system that helps determine for teachers the adequacy of learning objectives.

What we are saying here is that learning to behave as a total person requires an approach to instruction that moves the student from areas of security to areas of need, and in the process teaches him how to learn-to-learn. It is this confidence in himself as a learner that the student needs to learn in the classroom, and with it comes the ability to assess his own learning difficulties and move his basis of security from the easily achieved to a belief in his ability to achieve that learning which is difficult for him. Only then is his security an internal one based on a self-demonstrated worth. So, the student needs to learn this system of self-evaluation if he is to achieve genuine self-confidence.

What exists in this approach is the underlying structure that is essential to learning-to-learn. It is this structure that all content areas, if they are taught in an inclusive way, have in common. So this approach represents a basis for across-discipline interaction, one which is not a means of diluting content. Rather, it is a way of strengthening and interrelating all content for the student and for the teacher. However, it does provide, through the analysis of student inquiry processes, a means of relating any one

content to other contents in a way that focuses on the needs of the learner.

Performance Education is concerned primarily with student learning, not teacher behavior as the critical measure of the success of instructional systems. Teacher assessment is only one aspect, possibly not the most important consideration, and a clearly dangerous one on which to build a Performance Inquiry System. Our teachers' performances are not the best measure of our system's successfulness. For instance, there can be learning without teachers. The training program for the astronauts involves extensive instructional learning without the aid of other persons. Learning is largely the result of successful interaction within an instructional environment. Moreover, if we only looked at the best teachers, those considered by experts as highly competent, we would discover that in spite of their efforts numerous instructional programs result in little student learning. We have found that this is sometimes because of the limited range of inquiry processes allowed. These situations are restrictive instructional environments even for teachers. When our teachers do well that which is required of them, but their students still fail to get the educational skills necessary for success in our society, then it is not the teachers that have failed but the system of instruction. Correcting the inadequacies in our instructional systems should be our first task. It has become one of the major uses of the inquiry approach. Still, teachers in some school districts and colleges are now being assessed by students in order to make available in published form selection information on courses and teachers. Students as consumers may then shop for qualified instructors. This trend demands of administrators, faculty, and students alike increased sophistication in their awareness of

the purpose of assessment.[1]

THE IDEA AND FREEDOM OF CHOICE

Assessment must relate instructional objectives to the learning of students rather than to the spotlighting of teachers as entertainers who should make courses interesting and easy. Assessment can be made of specific performances but not of persons and is better when it is self-assessment. Anyway, the only criteria for accountability by which instruction can be evaluated is evidence of student learning. Performance Education's best instruments for objective analysis can be used to give teachers freedom to choose approaches that will enable their students to become learners, and eventually it can be used to identify the institutional programs best able to provide teachers whose students will achieve maximum success as learners. However, if evaluation is misused as a threat or a club to intimidate teachers, it is likely to make our teachers at all levels resentful of student assessments and more militant toward administrators. The road to Performance Education is not over the cliff of teacher assessment.

The less threatening route to accountability is to concentrate our efforts on the improvement of our learning systems through the establishment of quality controls. Quality control means the right of learners and teachers to select products, with the benefit of proper labeling, from what our schools

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[1] This material was taken from a paper by Burkhart on the "Formulation of the Process Inquiry Grid."

as market places have to offer. It means also the right to use that product to enrich their lives much as a woman does in preparing the menu for meals that will satisfy her own needs as well as those for whom she cooks. We need quality controls so as to assure for a larger number of learners and teachers a more complete life. We can begin here simply and positively by allowing teachers and students to take part in the decision-making essential for developing quality controls in Performance Education Programs. This means that time on the job needs to be provided for the improvement of instruction. Such time is available in the summer months in both college and school districts. However, the way in which successful instructional units are developed and ought to be assessed needs some clarification if this work is to be successful. Our present college and school district committee structure is not nearly adequate for the development and review of new learning sequences. Our committees are representative of the content discipline rather than composed of experts who are needed in the development and assessment of instructional systems. Committee members now tend, especially at the college level, to function mainly to protect the specific interests of their departments. They are there to see that others don't invade their content's instructional territory. They are there so that they get their rightful number of courses, students, and political opportunities as departments to expand along with the rest of the system. Evidence that this operation is political is shown by the fact that once a course is in the catalogue, our committees are no longer concerned with its instructional quality. Teachers on such committees, like administrators, are trapped by the politics of institutional expansion rather than provided with responsibilities for

instructional improvement.

A quality control system of evaluation is briefly sketched here to suggest an approach by which courses could be developed and assessed. After a course proposal is approved, a Phase Analysis System (Chart 2) indicates systematic follow-up procedures that are both objective and economical of time. By the means indicated, instruction can be evaluated periodically -- perhaps on a yearly basis. A review by consultants having expertise appropriate to different criteria for instructional development would determine the "go ahead" or <u>not</u> after each phase has been completed. In this way there are established quality-control checkpoints that describe two levels or principles of freedom:

1. The right to increased options among <u>properly labeled</u> products of high-quality learning (thus increased freedom of choice).
2. The right to engage in learning experiences that increase opportunity to use knowledge as a basis for action by individuals who are held accountable (thus action based on knowledge in the context of accountability and performance criteria).

These principles guided our approach throughout development of the inquiry system and can be useful in its further evolution.

A decision-making structure (committee) for the improvement of instruction also needs to be developed (Chart 3). In designing this program, we included personnel responsible for a much wider range of functions and expertise than might be expected:

CHART 2 PHASE ANALYSIS SYSTEM

PHASES OF DEVELOPMENT IN QUALITY CONTROL	EVALUATION OF PROGRAM DEVELOPMENT RESOURCES FOR INITIAL PLANNING	DESIGNING OF PILOT PROGRAM AND INITIAL TRIALS WITH PILOT GROUPS	FIRST FIELD TEST OF REFORMULATED PILOT PROGRAM WITH A LARGE GROUP RESEARCH DESIGN	FINAL FIELD TEST OF PROGRAM AS OPERATIONAL PERFORMANCE EDUCATION SUBSYSTEM	TRANSFER AND TESTING OF OPERATIONAL PROGRAM IN OTHER ENVIRONMENTS	PROGRAM PACKAGING FOR STATE AND NATIONAL DISSEMINATION AND INSERVICE USE
Subsystems I - IV	PHASE ONE	PHASE TWO	PHASE THREE	PHASE FOUR	PHASE FIVE	PHASE SIX
Course or Program under development	XXXXX XXXXX	XXXXX XXXXX	XXXXX XXXXX	///// /////	///// /////	Not Begun

Code: XXXXX Completed ///// Underway

1. The educational value of a particular unit of instruction within and across institutions can be determined by its phase of development.
2. This system of evaluation is an easy one for making objective assessments concerning the improvements of instruction as indicated by evidence establishing the phase of development reached.
3. It can be used as an approach to development of multi-section courses, course sequences, and to provide formats for the structuring and evaluation of specialized or unique offerings.
4. Faculty recognition as to salary increments and released time for course development purposes can be determined by the extent to which their instructional units are developed as educational resources. Faculty in this way could be rewarded for their on-the-job contributions to education.

NOTE: For further information, note John Hemphill's Chapter on Designing Operational Programs That Are "Worth a Hoot," THE ASSESSMENT REVOLUTION, National Symposium on Evaluation in Education, New York State Education Department, Albany, 1969.

1. Instructional development personnel.
2. Learner criteria representatives.
3. Elected representatives for those affected by the teaching situations.

Many of these persons have not previously been included as members on curriculum committees.

Chart 3 indicates tensional relationships that are represented by a triangular pattern. The actual work of the first group might be done by division or department members assigned to develop instructional units in much the same way as our Learning Center staff members at State University College at Buffalo. As the instructional system progressed, they had the responsibility of meeting the standards established by the Learner Criteria Representatives in the second group, in our case constituted by nationally known evaluators. The evolving instructional unit would also be subject to review and suggestions for modification by the committee's elected representatives in the third group chosen from the school districts and college for our project. These persons can be the channel by which any special groups such as students, teachers, or the public could make their views known and could obtain immediate responses to their concerns. The object here is to establish an action route through these channels so that appropriate educational change may occur. Further, this resulted for us in improved communication fostering better public understanding of our ideas. We found this triangular system of representation to be essential to the advancement, development, and implementation of our program and viewpoints toward performance education.

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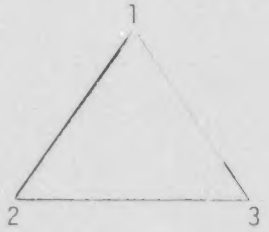
CHART 3 CURRICULUM COMMITTEE STRUCTURE

Instructional Development Personnel

1. Content Specialists
2. Professional practitioner
3. Organizer of instructional unit

FUNCTIONS

To design, formulate, and improve instructional programs as needed through various phases of quality control.



Learner Criteria Representatives

1. Coordinator
2. Systems Analyst
3. Communication Director
4. Resource Design Specialist
5. Learning-teaching Specialist

FUNCTIONS

Provide consultant service, phase evaluation, and work-shops for inservice training of instructional development personnel.

Elected Representatives of Teaching Situations

1. Administration representative
2. Teacher representative
3. Student representative
4. Association representative
5. Public interest representative

FUNCTIONS

Act as channel for communication with those affected so as to insure needed changes and to foster public understanding of new ideas.

Our three primary instructional objectives were: (1) content familiarization, (2) content application, and (3) the obtainment of positive levels of student interest as indicated by evaluations. These meet the minimal conditions essential for providing performance education in any field.

CONCLUSIONS

Tne approach to Performance Education advocated here has certain distinct advantages worthy of consideration.

(1) The suggestions made herein can be implemented now. The inquiry program builds on what we have at hand in ways that are economically feasible and in ways that have practical value for the immediate improvement of instruction.

(2) The approach taken avoids the obvious danger of presently conflicting, narrowly conceived doctrines of education, and it avoids commitments inherent in the simple policies of instructional expansion in which so many administrators and faculty find themselves trapped.

(3) This approach also avoids the dangers of destroying Performance Education by an over-emphasis on the idea of teacher assessment.

(4) It is a way of crossing the barriers of isolation and division between various specific subjects or contents. The ideas are broadly applicable not only to teacher education but to all instructional units in our university and public school districts regardless of subject-matter disciplines.

(5) The philosophy of Performance Education increases the decision-making opportunity for all those affected in ways consistent with learning to

be self-determining in a society freed from the fear of change. Growing capacities for professional action based upon knowledge is a major outcome of Performance Education.

With increased control over the quality of our actions comes increased freedom -- freedom to undertake with increased confidence the necessary challenges of today. By acquiring increased performance skills and strength of knowledge regarding those choices open to us, we can learn to shape our culture through our schools. What we can contribute through our schools by increasing people's performance capabilities is an increased sense of freedom of choice in our nation.

CHAPTER TWO

ADVERTISING AS "MIRROR, MIRROR, ON THE WALL"

By Robert C. Burkhart

Television and magazine advertisements provide magic mirrors by which we can be transported from reality to fantasy. In scant seconds their images influence us to such an extent that we are unable to curb the impulse to buy, sometimes days, weeks, and even months after the event. To obtain this effect, the communication processes employed are distilled and condensed so as to increase the duration of their registration upon our "mind's eye." This intensification of the effects of communication in turn reflects revealingly the range of mental processes we as a nation's people are willing to consider in choosing those products that will determine our life styles. By studying the full spectrum of "persuasion syndromes" to which consumers are subjected, we may obtain a picture of the communication personality of our nation. This study indicates, through the analysis of several thousand advertisements published at the beginning and end of this decade, that our language of persuasion has increased in range. We appear, at the beginning of the seventies to be less concerned with "what" and "which" and "how" than we were ten years ago, and more intrigued by the mental imagery that emanates from the hallucinatory world of "if." The next movement now seems to be toward the introspective world of "why." The overall picture we see is of our nation's moving away from the concreteness and certainty of the real and tangible and do-able into the uncertainty and ambiguity of the creative in spirit. S seems worthy of consideration that we look closely at the

curricula of our culture and its communicators in order to understand better the patterns of change in ourselves, our nation, and our schools.

What follows is an analysis of American cultural modes of response as found in a random sample of 2,400 magazine advertisements. To isolate these modes of response and to identify or label them, the five lenses of the Inquiry Process Grid are brought to bear with all the focal power of fifteen cells.

PERCEIVING: SENSORY MAGIC AND PICTORIAL INTENSITY

As a nation we are increasingly shaped by the consumer decisions of our women; and they have been, and continue to be, stimulated by the persuasive beauty of what is real to all their senses. They enjoy pictures that make their mouths taste the tartness of freshly cut lemons, wet and cool. They find satisfying the warming, subtle, steaming aroma of fresh-brewed coffee and are exhilarated by the refreshing frostiness of a soft drink packed in ice "that beats the others cold." The feminine view goes along with the idea, "when life hands out lemons, make lemonade." These pictures, though seemingly simple, sharpen our perception of certain realities beyond the point of ordinary daily experience, and so we remember them. That is the art of the realist.

This PERCEIVING process of showing with extraordinary clarity and minute detail the qualities of products in ways that call upon our senses of taste and smell and touch provides us with freedom in, and vividness of, experience that makes us buy. The pleasure of simple sensuality that can be

gained from common experiences in our daily lives in relation to ordinary things is a relatively stable part of our national character. It has not changed much in the past decade. It is one of the forms of persuasion to which we are most receptive. Since we must ask for products by their name, this is one of the surest ways that the communicators in our culture have of teaching us physically what things are called.

PREFERRING: FREEDOM OF CHOICE AND PERSONAL DESIRABILITY

Part of knowing oneself is directly connected with the right to exercise one's preferences to feel ard to choose what one desires. Further, psychologists know that there is no more accurate way of determining what we are like as individuals than to encourage us to express our preferences. To do this is not very difficult. It begins with so trivial an act as breaking open a roll of Lifesavers in their many colored flavors and asking someone to choose the flavor ne would like. Range of choice is more frequently featured in the advertisements of the 70's. In fact, when we start to look through brochures in the pocket of the airplane seat, we find that we come face to face with an advertisement called "The American Woman's Way," and it shows a face with three pairs of eyes and four pairs of lips all different in the colors of their eye shadows and lip sticks. To make the point, it seems that one model must wear simultaneously several variations of the same makeup. Who today has not been confronted by American Motor's expression of the generation gap showing father and son in confrontation over the Javelins of their choice? This sense of dressing and eating and driving and doing what

we prefer -- "Our Thing" -- is evident now in our national concept of ourselves as consumers. But the expression of preference is more than a basis for the exercise of personal freedom according to our desires; it is also the basis of all prejudice. No task has more challenged our communicators skills in the last decade than establishing in advertisements a new awareness and regard for the preferences of blacks and for blackness.

COMPREHENDING: ENLARGEMENT OF OUR UNDERSTANDING

Animals react with sensory keenness and emotional alertness to the events occurring in the world around them, but they cannot see, observe, or perceive an idea. The visualization of ideas requires definitive lenses that allow us to generalize about or characterize objects and events so as to conceptualize or categorize them. To know something by its attributes is to understand it as a member of a class and to organize our perceptions into patterns of relationships. It is relevant to our concept of so simple an item as a turkey dinner that it be constituted of "sage and onion dressing, real turkey gravy, and creamy whipped potatoes, and tender green peas, and tart-sweet cranberry sauce, and most important of all, good turkey." Swanson (of TV dinner fame) shows us item by item that these elements are within its frozen dinners. Another way of sharpening our comprehension is to show us what we don't see and reminds us of its importance. Thus, Chef-Boy-Ar-Dee says, "Think of our package as a shopping bag," and then they fill the bag up and the table around it with the many items essential to make spaghetti and meat balls. However, comprehension of a concept also

means that a main idea must be seen loud and clear. So Volkswagon uses a small elephant to show us that its stationwagon is big enough to carry an elephant. But Austin Design, Engineers, and Builders want to convey an even larger idea and that is they can help us expand "without shutting down or slowing production." They do this by a diagrammatic model showing the relation of an existing plant to a flexible plan for enlarging industrial capacities without discontinuing production. Much of our daily education both in and out of schools is concerned with the process of enlarging our comprehension.

SUMMING UP THE CONCEPT COLUMN

Since "what" is our very first inquiry about things unknown, it is not surprising that it constitutes approximately about 30 to 35 percent of the various advertising we see.[1] Here the dominant and stable process over the past decade are those of comprehending and perceiving and the newcomer is that of preferring. It adds an internal dimension of personal relevance to our consumer patterns.

In the 1970's we have an image of the products of our culture from a sensory or physical view, from an affective or cultural view, and from a cognitive or ideational view. We have then gained a more three-dimensional viewpoint toward "what" our world contains and "what" information we want made available to us for determining our selections from it as a consumer.

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[1] Figures are given here in upper and lower limits rather than in a single amount because they tend to fluctuate in various magazines throughout the year.

We have a similar pattern of learning experiences in the classrooms of our schools, except that they have not yet learned to cope with the preferences of the learners about what they are being taught.

QUALITATIVE DISCRIMINATIONS AND WOMAN'S SELF IMAGE

"Which is Which" is a game we like to play. So Franklin and Marshall College knew what it was doing when it used a Discriminating advertisement showing a long line of men standing at attention interrupted by the occasional profile of a woman as a way of stating that "Starting this fall some of our freshmen will be freshwomen." Women are thought to be alert to such differences and hold a concept of themselves as discriminating in many ways. Thus, they are often characterized as particularly fussy, especially when it comes to cleanliness. So when two drinking glasses are pictured, one with "embarrassing water spots" and one with "the Cascade look of spotlessness," they are supposed to buy Cascade.

We like testing ourselves in respect to our sensory discriminatory capacities and so are apt to stop and take Zenith's Crona Color Eye Test. Here we are confronted side by side with two magnified sets of green and red dots; but one set of dots is separated from each other by a field of black. This is a magnification of the Zenith Cronacolor T.V. Screen compared with the effect of our ordinary color T.V. We see the difference in color, contrast and brightness -- Zenith outcolors, out brightens, and out contrasts all others.

Throughout this decade we have been induced to decide in favor of those

differences that we can see and confirm "with our own two eyes." Perceiving and discriminating are related processes of inquiry that increase our awareness of the sensory world around us in ways we can enjoy and readily share with others. "Which is Which" is a game we will surely continue to play in the 1970's.

QUALITATIVE: APPRECIATION AND INDIFFERENCE TO REASON

It does not seem a long step from stating what we like to adding a statement of why we desire or even dislike something. This is the act of appreciative and critical minds. However, as a nation of consumers we have been indifferent to taking this step during the past decade. In fact, of the 2,400 advertisements appearing in 1969 that we analyzed, only 15 employed a reason to indicate an affective basis for liking someone or something. Apparently in the remainder, a reason was thought unnecessary. This is as complicated as saying "Thank you for your promptness, or courtesy, or alertness." But how often does anyone thank us for something specifically. Most women are aware, for instance, that men seldom say why they like something. Even so, ladies sometimes enjoy attempting to "fish for the reason." However, Union Carbide does a little appreciative reasoning about the value of its polyethyline garbage bag which they indicate "makes garbage beautiful" because it makes garbage clean, waterproof, and easy to carry. Perhaps in the 1970's we will learn the process of appreciation, especially now that pollution is a major social issue.

QUALITATIVE ANALYSIS AND RESPECT FOR OBJECTIVITY

As a nation happy to employ research to improve business and industrial processes, we are slow to accept reasoning about cause and effect as a basis for making consumer decisions. For instance, the executive who looks through Fortune magazine will find that in the past decade there is only about one research advertisement in every 100. Even research firms do not often use research information as their means of gaining research accounts. But this fear of analysis does not keep Heinz Ketchup from fearlessly demonstrating that after "three minutes and 39 seconds," a spot of Heinz still does not run like the other catsup next to it on a slippery white plate. Similarly, a Max Stern suit can go "10 rounds or 30 minutes in a 112-degree steam room and emerge crisp and unrumpled." Or you can freeze one side of your Corning Ware Pyroceram casserole dish as a block of ice and turn a blow torch on the other side and discover that it never breaks. Yet the range of sophistication possible in analysis advertisements is clearly indicated by American Can Company's illustration of the way they use the computer to balance out cats and ears of corn or equate other unlike things such as people and jobs. As important perhaps as the development of analytical power itself is whether we as a nation are gaining any new respect for analysis and research as a means of decision-making in relation to our own lives and jobs. During the first six months of 1970, an increase has been noted in the number of comparative tests, research data, and analysis types of advertisements that have been appearing in national magazines like Time and Fortune.

SUMMING UP THE QUALITATIVE COLUMN

America may be growing more interested in qualitative information than previously though it constitutes scarcely more than 5 to 10 percent of our national advertising. We can hope this trend indicates some respect for the qualitative processes of discrimination, appreciation, and analysis so essential to success in a society that has an increasing need for objectivity about itself. Our schools, like our society, are deficient in appreciative interaction or praise of students by teachers, but they are quite good on analysis, especially in the upper grades.[1] This is because tests like the New York State Regents stress problem solving as a measure of achievement. One wonders if what reminds us of school tests is a way of thought we would rather forgo than remember as consumers.

DOING: PROCEDURAL EXPERIMENTATION AND "WHERE THE ACTION IS"

If advertisements were analogous to keyholes to our culture, the place into which would be the most fun to peek would be the "Doing" arena for doing is playing and there are few rights and wrongs in free play. We are a nation of doers, whether indoors or out, and our recent national preoccupation with sex belongs here, "Where the action is," rather than in the affective domain. It is in this arena that "I dreamed I stretched from here-to-there in my

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[1]Note: The Regents and other tests, especially those in Science areas, have been analyzed by means of the Inquiry Grid. Also, profiles of 300 teachers in two school systems (urban and suburban) have been made, including observations of their interaction patterns with students.

MAIDENFORM TRIC-O-LASTIC." In a sex-oriented society there is no controversy about the value of sex education in the advertiser's mind. Here too we draw beards on pretty girls' faces with our SCRIPTO GRAFFITI PEN, and we are unable to find a way -- no matter how many ways we try -- to put TAREYTON'S charcoal filter on our cigarette. It is, however, important to recognize that there is a strong conviction among many American men and women that to have a full life means to have experienced the fullest possible range of sensations. This is one way in which American women have "come a long way, baby." In fact, between 15 and 20 percent of the ads in women's magazines fall in this area as compared to only 5 percent in magazines meant essentially for men. Men are seldom shown in action or photographed in free play ads. As far as we can determine where the action is, is where the women are.

INFLUENCING-COUNTRY

Now in MARLBORO country it's a man's world. It's here that the HE MAN walks a "mile for a Camel" -- so why wouldn't you? If you do dare the hot sands of the desert adventure, you too may find a large glistening star beckoning to you directly above a "Wonderfully Dry SMIRNOFF Martini" there to quench your thirst. Photographically we have discovered glistening devices to say "It's one beautiful beer!" "Besides, you only go around once in life, so grab for all the gusto you can. Even in the beer you drink. Why settle for less? When you're out of Schlitz, you're out of beer." But even out here in the wide open spaces in the high grass, a man still has

to be careful about using HI KARATE or learn how to fight off the girls. Still, the right man will make the "Right" moves with the "Right" girl by wearing WRIGHT slacks. For in Influencing Country there is still no influence like a woman's influence on men. However, this vast panorama has been diminishing in the past decade. Influencing Country has lost almost a third of its grazing lands and is down to a mere 25 percent of the nation's total advertising acreage.

APPLYING - Procedural "Know How" and Yankee Ingenuity

Where our astronauts go, our advertisements will follow. This is probably one of the reasons we were so determined to be the first nation to land and walk upon the moon. Moreover, our national self-concept is historically founded on confidence in our capacities for application. Yankee ingenuity becomes a theme for many "ads" even in magazines which are not "how to do it" in their general content. So, too, on TV we learn of Pampers, which have special innovations built-in for keeping baby drier. Regardless of where the water is running, the washers and driers of Maytag are so repair-free that their repairmen are the loneliest men in town. Application skills are so valued in America that we do not even think it strange that people get $100,000 year after year for knowing how to throw a fast ball or putt a golf ball. "HOW" is a word about which we have learned to communicate with ease, and for which we are glad to pay.

SUMMING UP THE PROCEDURAL COLUMN

It is here that our national images of man and woman and industry have been fashioned over the past decades. Our communicators strive to mirror our women's concepts of themselves as active and free, our men's concepts of themselves as adventurous and rugged and our industries' concepts of themselves as the best in know-how ingenuity. Between 35 to 45 percent of the "ads" we see demonstrate these images of HOW-POWER. Recreation has become a part of the school system, too, in playgrounds and parks and sports arenas -- but application mastery occurs only incidentally in relation to "what" and "which" in the classroom. In schools, education has traditionally meant knowing and only incidentally doing.

RELATING - Suppositional Association and Images of Luxury

"IF" has become an increasingly important word in America. If you "run out of LOWENBRAU....order champagne." In this suppositional associative world, General Electric Flair Bulbs burn like "diamonds." Soap is not to be seen as soap but is made as if it were pearls, so "Toss a handful of these precious pearls into your bath, and it will smooth, silk, sleek every inch of you to a new sensuous softness." Our opulent society needs these images of luxury created by such linking of its products to champagne, pearls, and diamonds.

These similes of our prosperity over the last decade have also opened up the possibility for poetry in our contemporary commercials.

Today's willingness to suppose has taken on two new dimensions, which represent a considerable extending of our openness to the imaginative factors in our decisions as consumers. Both constitute a new awareness or tolerance for a type of originality of a less concrete nature than is provided by our relating advertisements. These dimensions follow.

EMPATHIZING - Suppositional Personification and "Our Inward Eye"

The tensions of a sophisticated modern world have turned the imaginative eye of man inward upon his feelings. If he looks inside he may discover that his stomach is sitting in a chair opposite him complaining bitterly about his eating habits; so he learns about his need for ALKA-SELTZER -- which also provides him with protection against the "Blahs." From experiencing our own inwardness of feeling, we as consumers have learned also to interpret the feelings on others' faces, especially those of persons in service positions. At AVIS, under exasperating conditions, we even have the right to stick on the middle of their forehead a "Bug Stamp," indicating the particular affliction from which their service suffers in their attitudes toward us. Thus, the glowering eyes of the "Unhelpful Bug" and the bleary, drowsy eyes of the "Slowpoke Bug" encourage us to help AVIS enable its employees to try harder. Aided by this new awareness of feelings, we recognize along with New York Life that our wallet is indeed very much like a living part of us that can be hurt, especially by taxes. So in contrast to the man in MARLBORO COUNTRY athletes can cry on TV when forced to quit football by the commissioner or else sell their restaurant, and we do not question their manhood. Though

incidental, this openness to, and sometimes empathy for, others is the basis for a sophisticated humanity essential for a nation of Americans, who more than ever before are acting for the gratification of their senses and stating their preferences to others in no undertain terms. After a decade of tumult and change, assassination and riot, poverty and anger, empathy is becoming a national necessity.

TRANSFORMING - Suppositional Interpretations and Metaphorical Vividness

Today we instantly grasp what Time magazine is saying on its cover when it "Unzips the fig leaf," or what ESSO means when it declares that we should put a tiger in our tank. When SUNOCO advertises its oil by showing the oil can as the canister in a vacuum cleaner, and Borden shows its powdered milk box as a weight-reducing scale, their messages do not encounter the communication barrier to the same extent as in the past. Such "ads" readily catch our eye because they are fresh aesthetically in their significance, as Tupperware's beautiful watermelon which opens as a trunk with a clasp on it "to lock in the flavor." We have recently learned how to state what the new meaning is like for each new point of view. Thus, there is a new growth in the American intellect, which possesses extraordinary metaphoric vividness.

SUMMING UP THE SUPPOSITIONAL CHALLENGES OF OUR CULTURE

In order to suppose we now look to 15 to 20 percent of our "ads," which communicate to us in the transformative language of this decade. But more important is the fact that their vocabulary is rapidly becoming the language

of our youth. In their search for new meanings, they have invented by means of song, art, and dress. They have used these genres to indicate their ways of speaking to each other. Yet our schools continue to communicate with students only in the traditional vocabularies of WHAT and WHICH and HOW -- as though these modes alone are the appropriate substance for education. So if we are to join this search for new meaning, we must not only learn a new language but realize that its syntax evolved out of a deep determination to invent and discover new viewpoints about our cultural needs. Although youth is learning to speak this language of new meanings, the wide appeal of such "ads" would indicate that we are learning it along with them. We may be learning it, moreover, because it shows us how to form new viewpoints toward the problems we are facing today. All this would indicate we have entered a transformative period in our cultural history.

EVALUATIONAL PROCESSES

In areas wherein the culture is gaining vitality, even in those where the schools are not so doing, there is more reason for hope than in areas in which both are inactive. The evaluative processes represent gaps or voids in the cultural profile of the nation and constitute no more than 5 percent of the "ads" we see. However, what is important about those empty areas is that recently there has been an increased concern about their omission and the resulting negative characteristics in our national behavior.

EVALUATIVE JUSTIFICATION AND ELECTORAL SOPHISTICATION

It is clearly one thing to know the difference between products and another further step along the way to state clearly "WHY" one is a better choice than the other. So AVIS says, "When you're No. 2, you have to try harder." This step between the "Which is Which" of the qualitative world and the "Why" of the evaluative one occurs in Scaling as a result of the process of "justification." It is the justification of our choices that makes them evaluative. Thus, using Polaroid's scaling chart on "How to choose your camera," we can determine exactly those features we can get for the amount we hope to spend, and by studying them we may choose to spend more. Similarly, we are pleased that Remington gives us a "Why" by showing a secretary typing happily in a phone booth -- providing evidence that it is introducing "a smaller electric for a smaller office." But it is the time when our choosing shapes our nation on election day that the "Why" of policy and purpose needs to have been communicated with justifications sufficient to warrant election to a governing office. Reason can be, but seldom is, part of our winners' advertisements. Perhaps the reason for this pattern of thinking is that "WHY" is not yet our way of choosing as a nation.

VALUE AND EVALUATIVE DECISIONS AND NATIONAL EQUIVOCATION

Reason tends to run no more deeply than the basis of decision from which we originate our values. In the area of valuing, we could locate only 12 valuing "ads" of the 2,400 we analyzed in 1969. One example is: "In Memory of the 1,700,000 Americans Who Died For Nothing" in automobile

accidents. Another used the golden honey of bees at work to symbolize the value of "Productivity." This one was in close harmony with a gift advertisement for an executive wrist watch whose face was made of an early American golden coin as an indication that for him, "time is golden." In contrast, and more thought provoking, was the advertisement showing the lustrous golden edifice of a pseudo Gothic church whose stained glass windows were engraved in our currency insignia and elaborately decorated dollar signs. So it was with some relief that we discovered Kaiser Aluminum's concern about the problems of hunger. This Company raised the value question of "Famine in the Midst of Plenty" by describing this agonizing condition in the form of long, green, open leaves of a monumental husk of corn whose rows of kernels consist of face after face of the hungry and dying.

But the symbolism of the American flag versus the peace symbol has become a major communication confrontation as indicated by the sudden increase of value advertisements in 1970. Clearly, violence is producing polarization here in sentiment and conviction about our nation's values. Perhaps here our failure not only to teach VALUES but the processes of formulating and testing one's own values in dialogue with others, who may not agree, has been the most serious educational omission of all in our democratic society.

STRESS AND SYNTHESIS

Conflicts arising from concepts of black/white, college student/hard hat, young/old, urban/suburban, and so on are all problems of synthesis. Synthesis is the unifying inquiry process that is needed if we wish to work toward

inclusive solutions to the problems that divide the U.S. Yet, this mode of inquiry is the least frequently used process of communication used in our daily culture. When synthesis advertisements are employed, however, they are easy to identify. Their message is "we incorporate more." For instance, "Thunderbird always gave you the moon and stars....For 1970, Thunderbird gives you the Sun" together with its open sliding sunroof and, naturally, a girl....in 1970. You get it all with Thunderbird. Similarly, "if your business is expanding beyond national boundaries, there's every reason on earth to get under the Irving Umbrella." For Irving Trust Company's Global Insurance virtually covers every country in the world. In fact, stretched out on the spokes of their financial Umbrella are holdings in all the hemispheres of the globe. They, like Sherwin-Williams Paints, "cover the world." Both offer an inclusive approach to problems. But this is the simpler part of the message; the difficult part, rarely shown, is getting the diverse elements into a unifying whole. This need for integrative depth of purpose is best illustrated by the cover page advertisement for a story called "The IMMORTALIST" showing a skull, an idealized face filled out physically in all its features, and the same face shown inter-penetrated with sky and clouds. These three faces symbolize the synthesis of death/anti-thesis, life/thesis, and the concept of eternity (synthesis). Our incorporative capacities for meeting the demands of diversity are needed today in order to face the problems that divide us.

ADVERTISEMENTS AS "MIRROR, MIRROR ON THE WALL, WHO IS THE FAIREST NATION OF THEM ALL?"

If man's attempt to live a full life is found in his ability to experience his world across the full range of these Inquiry Processes, then one might fear that self-destruction might be the price for his failure to take the unifying steps essential for completeness. It is a positive sign that recent advertisements are becoming more sophisticated and some magazines more inclusive in the range of "ads" employed. This trend indicates that the average American is extending the range of his communicative capacities. The reason may well be that as a communication-hungry nation, we find some real sense of satisfaction in having these new kinds of advertising available to us. For it is clear that today our citizens as learners are:

--suffering from a deficiency in the use of the complete spectrum of inquiry processes essential for coping within our society, especially the evaluative ones, which have been omitted from daily education and other cultural sources. The function of our school is to fill these gaps that our communities and homes have omitted from our daily experience.

--suffering from omissions that have occurred not only in the curriculum of our schools, but in the experience of our culture. Unless these gaps are filled, the goal of participatory democracy cannot be sufficiently approached to enable adequate coping with critical problems. What we need in the seventies are those options for inquiry that we have lacked in the sixties. This decade needs to be one of evaluative dialogue.

CHAPTER THREE

AN OPEN LETTER TO PARENTS

By Alice Sprickman

Variety is the spice of life -- that's an old saying and one that we know from personal experience is true. Geared to a daily round of work, shopping, meal planning, and home maintenance, we are aware of the stultifying effect of routine and our many, many means of varying it -- television, new sports, out-for-dinner, vacation trip, a different picture for the living room, and so on. There seem to be endless ways for seeking variety.

What is surprising about this search for variety, though, is the time at which it starts. Early in 1966 a study by Berlyne at the University of Toronto showed that it is possibly an inborn need. Working with infants from 3 months to 1 year of age, he discovered that children as young as this visually search for variety and show preferences which change as they mature.

When we have the opportunity to listen to young children at play, we are impressed with the amount of variety they introduce into the same play situation. Certainly, as a group, they are bound by a routine as much, or more, than any of us. Yet there is young Caroline, dressed in old shoes of her mother's, standing in the corner of the porch "shopping for her family." Or there is three-year-old Steve in the sand box, building a bridge "across the ocean." And there is four-year-old Timothy sighting through his closed fist at the invading forces of another planet. And they really are serious and intent, you know! How many times have we called them that they didn't

hear? The mind's desire for variety can construct the outlet it seeks. All that we need to do is change our point of view.

Just as we can change our point of view by a change of scene, we can change our point of view by changing our frame of reference to the same scene. Let's consider an example by looking at Rubin Figure 1. If we were asked "What is the black figure?" or "What is the white figure?" the internal focus of awareness has been changed, but not the object. Now if we were asked, "Which one do you like best?" our focus of attention has been directed inwardly to a recognition of how we feel about it. And still another question, "What kind of picture would you call this?" has directed our attention into a completely different channel without changing the object under consideration. In each case we are engaged in an entirely different mental activity: we have labeled these particular activities as perceiving, preferring, and comprehending.

But how do children accomplish this with their lack of experience and knowledge? And how can we, as adults concerned with children, protect and enhance this ability?

One possible source of influence for children is the television. How much does television really help? What is its role? It does present a model for behavior within an established physical and social setting. Everything is quite visible and quite well defined. As such, it is the conveyer of a great deal of information -- factual information about things and people and places, and procedural information about how to perform certain acts. Information is certainly important. The more information you have, the more alternatives you have for decision. But information is not the same as imagination. If the child is obtaining variety in his television fare, he has more choices available,

but this still does not guarantee inventiveness. If "necessity is truly the mother of invention," then it would appear to be the gap -- the perceived lack of something -- that promotes inventiveness.

You and I, as children, engaged in these imaginative acts, and we did not have television. Many of us can remember the radio dramas that were followed avidly and which occasioned many episodes of dramatic play. The gap that occurred in a radio drama was the lack of setting. This had to be constructed by the listener, as did the physique and manner of the characters. Because of this need to be imaginative, many new dramas were enacted by children in the hay mows and back lots of America in the '30's.

Paradoxically, it would seem then that to satisfy too much is to spread dissatisfaction. Variety is critically important, but endless environmental variety can be monotonous. Apparently the important factor is choice -- freedom to construct the material to fill in the gaps. We need information and we need gaps. Television is primarily concerned with filling our gaps with informational units. Television needs guided intervention from adults.

What other readily accessible sources of variety does the culture provide for children? Books. Books provide visual inferences and verbal interpretations. They provide some information, some sequential organization, some models, but like a silhouette, there is much left to be filled in by the individual. How many times as a child did you go back to the same book? And yet, it was not always quite the same.

I recall a group of children deeply involved in presenting a puppet show of "Treasure Island." Endless painstaking work on puppets, followed by hours of rehearsals -- and yet, the last scene always changed. Each

time that they reached that glorious moment wherein the pirates unearth the treasure chest of gold (it was a sardine can filled with discarded foil candy wrappers), the choices available to them overwhelmed them once more -- and there was a new finish to the well rehearsed play.

Books mean something to children. Good books with quality illustrations attract them and intrigue them. Here is information -- and mystery. "Read me this story, Mommy" is bound to follow the first perusal of the pages. And then there are questions and it is necessary for them to be alone, to work it all out again, changing it, modifying it, making it their very own. Books provide variety to lives; there is variety implicit in books.

Young children are a "doing" -- an ongoing creation. You and I in retrospect can look back upon ourselves over the years and identify some really basic changes in ourselves. But the day-to-day pattern of our lives, and of ourselves, seems rather static. Our children, however, change quickly -- from month to month, from day to day -- sometimes within a few minutes' span, you see the change emerge, like a flower unfolding before a Disney magic camera. It is exciting and frightening, too -- for we are responsible for the nurture of the seedling, and yet there are so many times we are not with him, so many places we cannot go.

Books -- our selection of books -- is a way of extending our influence on direction. Toys are another. Toys are "doing" things to children. How can we guide our choices in toy selection so that we are not perverting the essential meaning of a toy to a child by succumbing to compromise or bargain in return for good behavior? This means that we must set criteria and weigh our decisions about toys. Thus, we convey to the child that we, too, consider

toys important -- important enough to select or reject on the basis of intended use as well as quality of workmanship, price, and expediency. How then do we select toys or books or television shows? How do we determine what we will give unto our children?

Lillian Smith once said that there are only two things that we can give our children -- roots and wings. This is a lovely and a practical way of looking at ourselves and our children. It's a terrible responsibility, being a parent. It always was, but now more than ever. Already our children live in a world different from our own. For example, have you ever noticed their acceptance of the TV commercial as part of the show when to us it is an interruption? We are faced with the responsibility of forming their characters and helping them to establish a basis for making decisions for a future we cannot even begin to comprehend. What do we give them? Reliance on faith in life's goodness when we know they must rely again and again upon their own decisions? Or a good education when we don't know what body of knowledge they will need? Or rules (either our own or society's) when we don't know what future to which they will apply? No, no -- all of this applies to the minute, the now, but none of it satisfies what we sense must be given to the child in order to prepare him for his own life.

There is much information we can give him but more important would be for him to know how to secure information himself. Faith in life's goodness seems today less important than faith in self and full empathic understanding of others.

Both of these belong to the roots we give our child. How we interact with him to produce exploration, and observation, assessment and evaluation,

of his surroundings and of himself would all contribute to the roots. A range of experiences would be a very important factor contributing to root development, but equally important would be the way in which the experiences are presented. Just as a gentle rain distributed throughout the soil provides more nurture for the plant than a bucket of water dumped all at once in one spot, so the guiding of the child's mind into completely aware interaction with the experience is more enriching than dumping all the information at once into his mind to sort and file away. As the roots must stretch to find their food, so his mind must reach out and seek its needs.

But information and the seeking of information is to whet the appetite for new horizons. The bird balancing on the edge of the nest is only momentarily pleased with his accomplishment. There are dreams to be dreamed and goals to be met. Do we give them the laws of God and man, or the list of professions to which they might aspire? Can we truly call these wings? Surely they can fly beyond us -- beyond the Christian laws which have created wars and beyond the man-made laws which have polarized our nation and beyond the limits of our knowledge which leaves us only fear? How do we give children wings? How do we give them more than we are? More than we know? I think we can do this by enhancing their ability to create. In terms of a toy, what else can it do, what is it best for, what else is it like? In terms of a friend -- or an enemy -- what is it like to be her, how does she feel, when is she nicest, what is important to her, how can I change her for better times for both of us? In terms of a book, what does it tell me, what new ideas does it suggest, what would happen "if," what is right for me and why, and is it right for others?

Just as a bird flies into a vast and empty space, its freedom governed by a complex structure we call instinct, so we must provide our child with a structure which is a pattern of questioning himself, pushing beyond and beyond the apparent with his questions in order to chart that vast space which is the future.

The delightful part of this measure of the responsibility is that it is rewarding to us, too, in the daily interaction units it presents. We don't know, and won't know fully ever, the direction the roots will take or the shape of the wings he creates, but the challenge of finding the question that will force him to seek, to push, to explore, to create, lifts the oft-meaning task of routine child care into the rather heady excitement of discovery.

CHAPTER FOUR

A KALEIDOSCOPE OF CHILDREN'S BOOKS

By Maxine Fabian

INTRODUCTION

The identification of a good assortment of books according to mental processes takes a certain amount of training. An analytical housewife decides on grocery items because she has disciplined herself to observe labels, balance the weight and size of each container in her mind, compare similar items by price, and makes an informed comparative purchase. As parents, we are buyers for our children's books and must train ourselves in a similar fashion. The commodities which we must deal with are age level, mental activity, simplicity, and the physical quality of the book. A parent is usually aware of the age level at which a child can work. However, only by reading the material which is recommended for that age level can the "buyer" make as educated a decision about books as he feels he can make about groceries. Books should be chosen in such a way that the selection constitutes a variety of ways in which the child may inquire about his environment.

If a child can learn to respond with "why," "if," and "which is which," together with "what" and "how," then he is on his way to more critical and imaginative thinking. We are, in fact, shopping for learning experiences. The mental activity a child engages in while reading a book is extremely important. Through books the child learns to observe, to develop feelings, to suppose, and to reason about the world around him. All these ways of

learning and inquiry should be present in his books.

Primary reading books are most effective and valuable when the story involves only a single or a few forms of inquiry. Simple structure makes the book easier for a child to understand and, therefore, more enjoyable. When a young child is required to think in only one or two directions at once, then it is reasonable to assume the child will learn to master those avenues of inquiry with ease. Why, then, have certain "children's" books become classics when they are as complex as Alice in Wonderland or Pinocchio? The reason these stories have become classics is the presence of a multiplicity of thinking processes involved in the stories. Their range makes the tale appealing to the twenty-year-old as well as the five-year-old. The appreciation takes a different form with every age group because new meanings come through with each successive reading. And these stories will undoubtedly be entertaining for many more generations. The point is that very young children need to begin to learn to inquire at simpler levels before they can enjoy the richness of the classics. A child's library needs to be a kind of kaleidoscope of Inquiry experiences which provide an expanding pattern and diversity of learning experiences from which they can experience new ways of envisioning their world.

SHOPPING FOR BOOKS

The Inquiry Process Grid defines these mental activities more specifically. However, it isn't necessary for the parent to be totally familiar with all the definitions and intricacies of this evaluation process.

It seems that it would be more valuable to illustrate these categories with actual library examples as a comparison method for parents to use when "shopping" for books. Each thinking process has been named, according to the Grid, for identification purposes only.

Perceiving - One type of "PERCEIVING" book is characterized by sensory descriptions. Whatever the subject matter, it is discussed in relation to its sound, smell, taste, feel, or visual appearance. The other type is concerned with giving labels or names to whatever is being presented. For example, a "PERCEIVING" book about cats would probably label a picture of a cat and then talk about its soft fur and long tail.

An excellent book for "PERCEIVING" activity is Pat the Bunny, by Dorothy Kunhardt. The book is designed so that the child can actually feel the softness of the bunny and smell the perfume of the flowers. It allows the child to use all of his senses. One Step, Two..., by Zolotow and Duvoisin, is a very good book about labeling things. A young girl and her mother take a walk and the girl points to all the things that she can name.

Preferring - "PREFERRING" books are about someone's or something's feelings, likes, dislikes or wishes. This attitude is always stated as a simple fact. There is never an attempt to explain a reason for the attitude. A "PREFERRING" book about cats might tell of a little boy who just likes cats enough to collect them.

Ferdinand, by Munroe Leaf, is such a book. It tells of a bull who would rather smell flowers than do anything else in the world. The reader never knows why Ferdinand chose to like flowers. Square as a House, by Karla Kuskin, asks the reader to determine his preferences as if he were "as square as a house."

Comprehending - A book which deals with basic concepts or definitions is a "COMPREHENDING" book. The object of this kind of book is to characterize the subject matter according to its nature or its principles rather than by its physical attributes. Generalization and categories are both comprehending activities because they build concepts. This is more easily understood by asking the question, "Does this book talk about things which are sensed or things that must be understood?" A book that shows that lions, tigers, and Pomeranians all belong in the cat family is a "COMPREHENDING" book because it establishes the concept of "cat."

Everyone Has a House and Everyone Eats, by Green and Klien, is a good example. This builds the concept of home and diet. A child may observe himself or his pet feeding, but to generalize about eating as a common habit for all living creatures is a comprehension concept. Green Says "Go," by Ed Emberly, is a book dealing mostly with definitions.

Discriminating - "DISCRIMINATING" books talk about the observable differences and/or similarities between two things. A book which discusses the differences and similarities between pedigreed and alley cats is one that is making a discrimination.

Have You Seen Roads, by Joann Oppenheim, is a good example. She offers the idea that there are roads over water, roads under water, and roads that are water -- different kinds of roads.

Appreciating - One type of "APPRECIATING" book deals with someone's or something's reasons for feelings or wishes. It is an explanation of "preferences." The other type is a book that gives special merit to someone or something for reasons of quality or appropriateness. In both cases,

these reasons are on a concrete level rather than an abstract one. A story of a little girl who loves her new kitten because it purrs and tickles her face with its whiskers is an "APPRECIATING" book.

Be Nice to Spiders, by Margaret Blay Graham, is an "APPRECIATING" book to show that we should like spiders because they benefit us by eliminating flies. The Remarkable Harry, by Hunter, is a story of a man with an especially long moustache, which his wife hates because it droops in his cornflakes. However, she changes her mind and decides she likes it because it's the "talk of the town." Children's illustrations make the story very exciting entertainment.

Analyzing - "ANALYZING" books have to do with thinking out problems. In some cases, this may have to do with determining what caused a situation to happen. Some deal with an examination of the parts of something in order to explain how the whole thing functions. When several factors are being taken into consideration in order to predict an outcome, the activity is an "ANALYZING" one. Without any apparent reason, a pet cat crawls behind the stove and won't come out. When the family tries to figure out why he acted that way, it becomes an "ANALYZING" book.

Don't Count Your Chicks, by I. and E. D'Aulaire, is a story of a farm woman who gets involved in planning what she could do with the money she gets from her eggs. Taking everything into consideration she predicts that she will become rich if she keeps expanding the hen house and selling her eggs at such and such a price. In the end, she drops her eggs and loses all as a result of daydreaming.

Doing - "DOING" is play. "DOING" activities are open-ended experiments,

tries, or attempts. The "DOING" book usually introduces an object but does not state what it is really used for or how it is to be used. The story line becomes someone's or something's attempt to employ it any way he discovers it will work. For example, a story of a cat that found a ball of yarn and spent the day trying to unwind it, bounce it, or even talk to it would demonstrate "DOING."

The Snowy Day, by E. J. Keats, is a beautifully illustrated "DOING" book. A boy does everything he can with snow, including an attempt to keep a snowball in the house. Whistle for Willie, also by Keats, is about a boy who tries every way he can to learn to whistle.

Influencing - "INFLUENCING" books are designed specifically to illustrate some means of motivation or persuasion. Usually, the story is about flattery, emotional displays, or repeated phrases used in such a way that it gets the desired response. Children are natural "influencers" when they cry in order to have their own way. Likewise, a cat that purrs only to get attention is "influencing."

It is good to note that there are very few "INFLUENCING" type books on a primary level. However, Dr. Suess has one book which is an excellent example. It's called Dr. Suess's Sleep Book and the repeated yawning illustrations and fantastic rhyme are meant to get the reader to go to sleep.

Applying - The how-to-do-it books are "APPLYING" books. "APPLYING" deals with using a given method in order to perform a task or solve a problem. It also works in reverse. Given a problem, new uses may be discovered for old tools or seemingly useless tools. The making of simple combinations, without changing the original functions or nature of the parts, is also an

activity included in "APPLYING" because it is only a way of putting two things together. A book that tells how to care for a cat or any other animal is an "APPLYING" book.

Buford, The Little Bighorn, by Bill Piet, is a story of a mountain sheep's horns growing so long and curly that the sheep decides to use them as a pair of skiis. The Alphabet Tree, by Leo Lionni, shows how words are made from letters and sentences are made from words.

Relating - This type of book associates two usually unrelated things. Similes are a common method for doing this. For example, "John's face looks like a fuzzy peach" is a "RELATING" statement. Other situations peculiar to "RELATING" are those in which a person or thing is placed in another context that requires decisions in order to resolve the situation. "Pretending" is a good way to describe this way of thinking. A book which shows that the spots on cats make them like other things is "RELATING." Some cats, for instance, look like tough kids with black eyes!

The Wing on a Flea, by Ed Emberly compares the triangle, circle, and square to other things in our environment. A triangle like the wing on a flea or a circle is like a child's balloon. The book is well illustrated. A Picture for Harold's Room takes Harold and his famous purple crayon for a walk through a pretend picture. Harold is sometimes as tall as a tree or as small as a bird.

Empathizing - This is a rare kind of book. "EMPATHIZING" books put their subjects in someone or something else's place and then ask, "How would you feel in that situation?" There are very few books dealing with prediction of feelings. They are not designated to guess at someone else's feelings, but rather to describe your own feelings if you were in the other's shoes. A little

girl who tells of how she'd feel if she had to change places with her cat is a theme for an "EMPATHIZING" book.

Note: I have not, in my own period of research, found a book that could truly be called "EMPATHIZING." This omission is an indication that there are certain gap areas in a child's education because these activities are simply not offered. Hopefully, the gap will soon be filled.

Transforming - "TRANSFORMING" books deal with the making of symbols. Analogies and metaphors are typical. Developing a symbol in a book may be done in another way also. Suppositionally, two things are placed in a relationship and then the nature of that relationship is symbolized. For example, cats are like women in their sense of personal privacy and mystery.

Where the Wild Things Are, by Maurice Sendak, is about a boy named Max. Max, who is nicknamed a "wild thing," imagines himself in a land where he becomes the Wild Things' King.

Scaling - In a "SCALING" book, one item is rated above another item or set of items. The rating must be reasoned in order that it may be called a scale. Otherwise, the items have simply been separated and would be called "discriminating." The rating system in a "SCALING" book can be on any basis: better than _____, faster than _____, bigger than _____, or even more appropriate than _____. Justifying this scale is usually done in concrete terms. "SCALING" can involve a large number of items if they have been arranged in an order (continuum) from one extreme to the other. A book with a story about why cats are better pets than dogs, canaries, and guinea pigs would be a "scaling" book.

The Biggest House in the World, by Lionni, is a story which illustrates

why smaller houses are better than bigger houses for snails, who must carry their houses with them.

Valuing - "VALUING" books are just what the word sounds like they would be. In a "VALUING" book, some personal decision has been made because of a value. This value is the reason for the decision and is usually based on an abstract concept such as independence or freedom. The decision being made in such a book is clearly a reflection of what the person feels to be important to him. A kitten is sold to a rich city woman but returns to the children in the country because he values companionship and play over luxury. This would be a story line for a "VALUING" book.

Tico, and the Golden Wings, by Lionni, is a story of a bird who wished for golden wings. His friends think he's trying to show off and won't associate with him. Tico gives away all the golden feathers to the needy so that he might return to his friends. Tico's decision was based on the value of friendship over wealth and distinction.

Synthesis - Despite the fact that "SYNTHESIZING" is the most difficult mental process, it is an easy activity to recognize in a book. There are two distinct "SYNTHESIS" situations. In one case, two completely different products are joined or combined in such a way that the resulting product is a more inclusive whole or is a new product with its own function. This is more than the simple combination in "applying." In another situation, two problems have to be resolved by a single solution that will remedy both problems. It's called "killing two birds with one stone." Two boys come across a cat about to have kittens. Originally, the boys were not friends. But as the two built a house for seven kittens, a friendship grows. In this sense, the cat has

become the synthesis factor in the boys' new friendship.

Swimmy, by Lionni, is an excellent example. The tiny fish in Swimmy's sea are being eaten by the larger fish. The tiny fish are too small to escape and cannot hide all day. So Swimmy literally arranges them to swim together in the shape of the largest fish in the sea.

A note might also be made here about authors. In my own personal and professional opinion, there are certain authors of primary books who always produce books of excellent quality. Excellent quality describes the content area, the illustrations, and the mental processes involved in the task. Leo Lionni is my first choice. Mr. Lionni's books scarcely need to be read in order to appreciate their impact. The themes chosen for his books are always simple, concise, and relevant. Ezra Jack Keats, Ed Emberley, and Crockett Johnson have also mastered their field. Dr. Suess, although not always involved with heavy thinking, gatners his merit from producing some excellent suppositional nonsense for children. Each of these authors has developed his own kaleidoscope for children.

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CHAPTER FIVE

COMMENTS ON DESCRIBING THE ANATOMY OF INQUIRY LEARNING

By Robert C. Burkhart

INTRODUCTION

Dramatists, historians, and critics continually claim to see patterns in the events and works of the persons they comment upon. But it surprises me to think that any large portion of my life's effort, with respect to the research I have done, would leave a clearly definable pattern about which I or others could say, "Now this leads next to this." However, a pattern runs through these years of research that has resulted in the formulation of the inquiry processes represented by the Grid. The pattern is worth discussing, also, because it provides a view that only the route of discovery can illuminate. Certainly, much took place relevant to a fuller understanding of the anatomy of inquiry that could not be guessed from seeing only the year's work for 1970, especially since the origin of the idea dates back to 1960, approximately 10 years. The Inquiry Grid then grew slowly and was not the result of sudden inspiration but rather much exploration. These research explorations began in relation to visual arts as practiced by professionals and in the schools from kindergarten through college. During the early '60's, arts in education provided us (Kenneth Beittel and myself) with a source of cultural insight that helped us to visualize the functioning of the inquiry processes in which many American artists, both professional and novice (including students), were engaging. By reviewing the evolving or contrasting

aspects of past research, a new relevance comes to our understanding of the present inquiry approach.

THE INQUIRY PROCESSES THAT ARTISTS USE: 1960-64

In 1960 I found that there were two very different processes used in creating a work of art: one, quite deliberate, step by step, static in imagery and precise in its craftsmanship; the second, quite spontaneous, dynamic in handling, mobile in imagery and loose in craftsmanship.[1] The content conveyed by these two processes of envisioning[2] was very different and a reflection of the artist's (professional or novice) strategies of responding to events or occurrences conveyed or created by the art. In relation to subsequent art trends and the present process inquiry system, these spontaneous and deliberate strategies can best be described as follows:

DELIBERATE STRATEGIES

The WHAT approach as "Sensory Perception"

Here the artist whether novice or professional attempts to depict real things in sensory terms almost as though the brush reproduces by its touch in

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[1]Robert C. Burkhart, "The Creativity-Personality Continuum Based on Spontaneity and Deliberateness in Art," Studies in Art Education, Fall 1960, Vol. 2, No. 1, pp. 43-65.

[2]Kenneth Beittel, "Effects of Self-Reflective Training In Art On the Capacity for Creative Action," Cooperative Research Project No. 1874, 1963.

each stroke the real textures and colors of grass, water, wood, glass, skin, fur, etc. This is the perceptual way of experiencing reality through its re-creation.[3] Deliberateness in sensation is derived from the working process: one of experiencing the sensory substance of the object through one's hands and eyes.

The WHICH is WHICH approach to "Sensory Discrimination"

This approach denotes a more qualitative concern about the nature of sensory events occurring in one's experience and is meant deliberately to reduce them to their visual qualitative essence. "Op Art"[4] is particularly representative of this approach to the sensory abstraction. The artist often works within a narrow focus on a discriminatory problem such as arranging squares, circles and elipses in a pattern that makes them recede or reverse their spatial dimensions as a means of creating visual excitement.

The WHAT approach as "Cognitive Conception"

This strategy is one in which the artist is concerned with the essential attributes of the objects to be painted so that the main "concept"

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[3]Robert C. Burkhart, Spontaneous and Deliberate Ways of Learning, (Scranton, Pennsylvania: International Text Company, 1962). The approaches mentioned above are more fully discussed.

[4]Op Art: Optical Art

can be grasped at a glance in much the same way as billboards. Thus, "Pop Art"[5] had this as its purpose in creating larger than life banana splits, hot dogs and soup cans that are so commonplace in our culture. This is the simplest level of our cognitive behavior, which in a way is the function of such communication media as our comic strips. Again the method as a process of thought and work by which such ideas are conveyed is a deliberate one.

The WHICH approach as "Cognitive Analysis"

Here, a far more abstract orientation is necessary in that the mental process involves representing in diagrammatic or model form, the analysis of substances or objects in the world of science. Here the scientist must, in visual forms, conceptualize a formula. The scientist in building a visible structure of atoms and life's molecules like D.N.A. or any other imaginable structure in man's universe here acts as an artist. This kind of art is more analytical than any of the other forms of deliberate strategies of creation because in the process of delineating what it is meant to represent, its logic must fit what is known or postulated theoretically.

Summary

Deliberate strategies of art work ranging from Realism to Op Art as Sensory ways of experiencing life and Pop Art to Science Art as Cognitive ways of conveying ideas are controlled and analytical. This trend has been

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[5]Pop Art: Popular or People's Art

particularly evident in the kinds of art interest appearing in the middle and late 60's. Its evolution represents a sensory and cognitive expansion in the way we visualize the world.

SPONTANEOUS STRATEGIES

The HOW approach to "Doing as Sensory Kinetic" freedom

The spontaneous approach to art literally begins with the freedom of movement and emotional intensity that very young children sometimes bring to their scribblings.[6] Far more sophisticated but seemingly as fresh and direct a form of expression is the Kinetic Art of the drip and splash artists, who belong to the school of abstract expressionism. Through spontaneous release of energy, the action becomes the image.

The WHAT approach to self-expression as "Affective-Preferential" freedom

As the child passes from the sensory-kinetic freedom of scribbling to the direct but uninhibited expression of his emotions, he expresses in the forms of his images of himself and others the full range of his likes and dislikes, anger and fear, surprise and wonder. He energetically states his emotions through distorting and exaggerating the images in his paintings. In a similar manner, the imagery of the expressionist is employed to express the spontaneous embodyment of his feelings. The savagery of men and the

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[6]Victor Lowenfeld and W. Lambat Biettain, Creative and Mental Growth, Macmillan, 1964.

destructiveness and violence of the last decade have been constant themes. The concern of abstract expressionism has been to convey by means of personal spontaneity the emotional realities of life rather than the sensory and cognitive ones.

The WHICH approach to the romantic expression of "Affective-Appreciation"

This spontaneous strategy of work becomes softened as it enters into the world of women's softness. It is commonly found in the soft washes and flowery brush strokes in magazine illustrations of stories of romance involving misty evenings and the shadowy figures of men and women in the pursuit of the pleasures of love. In the work of the post impressionists, the soft world of woman came to full blossom and bosom. If the love of softness becomes unfashionable in the '70's, the love of man for woman will probably always require at least some spontaneous expression of appreciative admiration.

SUPPOSITIONAL STRATEGIES

If/Then Transforming, Empathizing, and Relating Approach to Art

The suppositional approach to art in education and in culture was postulated in 1964.[7] It was studied along with what we called for the first

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[7] Robert C. Burkhart and Hugh Neil, Identity and Teacher Learning, International Textbook Company, Scranton, Pennsylvania, 1968.

time the conceptual "What" and "How" inquiry approaches. Evidence of the suppositional approach in art is provided by the sudden changes in viewpoint and imagery of Picasso and also Lipchitz. Consider in particular the highly symbolic kinds of imagery in pictures like Picasso's "Guernica." These giants in the world of painting and sculpture are both transformative and empathetic, whereas surrealist works like those of Dali take us through relating-associative imagery into the suppositional sensory landscapes of a dreaming mind. Then, too, the suppositional approach characterizes the imaginative minds of playful but highly transformative artists such as Klee and Miro. Today the visions in such art forms have become absorbed into other media, and we can see their popular evolution in movies such as the "Yellow Submarine."

Having confirmed that these different procedures did in fact occur at various levels of human experience, in art from those of the novice to professional and in the talk of both teachers and students from kindergarten through college, our problem was to find methods that would enable teachers to learn by exploring these inquiry processes.

THE INQUIRY STRUCTURE NEEDED FOR TEACHER LEARNING: PART TWO 1965-67

During this period we set out to establish in pilot or experimental studies a new approach to the learning of teachers. This work carried out largely by Robert C. Burkhart and Hugh Neil was and still continues to be incorporated into our program as an approach organized around the following viewpoints. Learning to be a teacher requires depth of self-reflective

understanding, personal involvement, and carefully sequenced inter-related experiences for continuous development. This self-reflective education begins with the self, moving to the self and another individual, then to the self and a group or class of learners, and finally to this group's interaction as learners with the culture. Most important for educators, such teacher-learning experiences require a series of tangible products by means of which the purposes and goals of the individual can be reviewed at each step and seen as contributing elements to their pattern of development. Specifically, there is needed an enabling structure that will allow the individual to ask and answer the questions essential to making each step in this sequence an increasingly well defined and identity-fulfilling commitment to teacher learning. Creating an enabling structure to meet these objects has been and is our primary task.

A record of the efforts of Burkhart and Neil is fully expressed in our book, Identity and Teacher Learning, which we wrote in the summer of 1966 as a result of our previous year's experimental work. We used a mimeographed edition until its publication in January 1968. Paul Torrance, in these excerpts (below) from his Foreward to the book, comments upon its relationship to the contributions and philosophies of other educational thinkers. His comments tend to convey the position that we tried to establish with respect to criteria for the implementation of teacher learning through an enabling structure.

"Burkhart and Neil join a long line of educational thinkers who take the position that the human learner is basically self-activating and creative, requiring guidance and direction but not dictation and coercion. Teachers

and educational innovators have generally overrated the receptivity of the human mind. This has been true both of advocates of the learning-by-doing approach and of authority-orientated educators who hold as an ideal the learner who is quiet and passive, accepts and remembers what he is told by authority, and is punctual, neat, and orderly. The former do not give enough guidance and direction and assume that one learns automatically by doing. The latter give too much guidance and direction, keeping one from learning how to learn.

Learning by doing was of course one of the dominant themes of John Dewey, William Heard Kilpatrick, and others associated with the progressive education movement in the United States. Their general view of the nature of human intelligence and learning was grounded in active methods of positive inquiry and the systematic subject matters that are the results of inquiry. Like Burkhart and Neil, they placed emphasis on the processes of doing and inquiring. Unlike Burkhart and Neil they did not invent and develop effective procedures for guiding learning in ways that would increase the chances of successful outcomes. Others have pointed out this deficiency. J. L. Moreno, for example, contends that the learner's involvement in the doing is usually so intensive that many experiences and expressions, physical and mental, are unnoticed by the would-be learner. These unnoticed phenomena, however, may at times be noticed by a co-actor or observer (teacher or fellow learner) taking part in the situation. This means that to give effective guidance, teachers and fellow learners must co-experience or co-act with the learner. In his practice, Moreno has used role playing, psychodrama, and sociodrama. These methods have been applied in education only

with partial success. In general, those who have attempted to apply these methods to education either have been too bound to Moreno's methods to break away and achieve a creative translation of his idea or else did not really understand the idea. In the procedures developed by Burkhart and Neil, both the peer evaluator and the supervising teacher assume the roles of co-actors. They have described quite effectively the processes that emerge when these procedures are applied. In future work, I feel confident that the authors and others who attempt to employ these procedures will be able to systematize and make them more easily reproducible."

Our problem became almost immediately to "systematize and make them (our approach) more easily reproducible." So we set about establishing with other faculty in the summer of 1967 a more systematic and better defined structure for the learning of teachers.[8] At this time we formed the Teacher-Learning Center of the State University College at Buffalo for which I became the Coordinator. The primary characteristics of the program are described in the following quotation from a pamphlet on its operation:

"The program stresses evaluation so as to enable teachers to continue learning about teaching even after graduation or while on the job. Instead of giving answers, the student is informed about methods for evaluating his teaching through which he can develop his own answers. The Center staff also believes in learning through doing but not simply by doing what another more experienced teacher does on the job. Instead of emulating the experienced

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[8]These faculty were Vincent Arnone, Jim Battistoni, Layman Jones, and John Rogers.

teacher, the emphasis is put on self-evaluation in an interpersonal setting. Here another student teacher or peer and the experienced teacher utilize the student teacher's self-designated criteria as a basis for sharing insights into the way that beginning teachers may develop a distinct or individual identity of their own in the classroom. The Center believes, then, not so much in telling or doing, but in sharing through evaluative learning experiences."

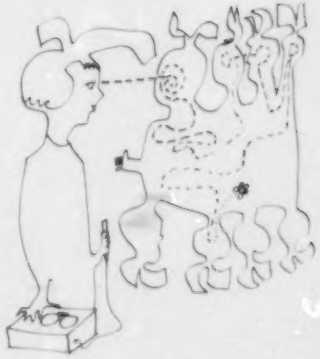
The Lesson Improvement series became the central element that allowed us to provide the kind of evaluative experiences we believed teacher-learners needed to share with one anotner. Its elements are communicated both verbally and visually by the following pages from this pamphlet.

FIGURE 1

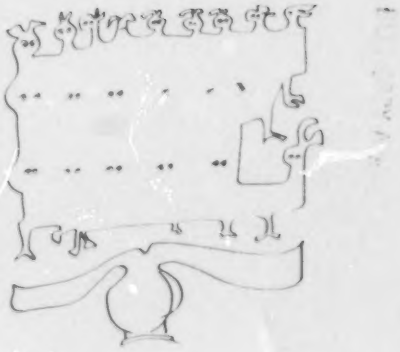
LESSON IMPROVEMENT SERIES

Learning in this program means teaching the same lesson several times so as to be able to see clearly how it has been improved.

It is necessary then to find a topic that will interest your pupils' for *four* lessons.



In your first lesson you will want to *diagnose* your pupils' learning needs.



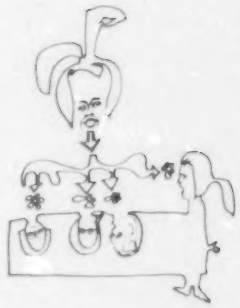
In the rest of your lessons you will want to *broaden* your understanding of yourself and your pupils.

FIGURE 2

PREPARATION AND INSTRUCTION

In order to teach four lessons you will need to develop your idea so as to make the small "i" of the pupils as important as possible.

You will also need to visualize your *actions* as you teach

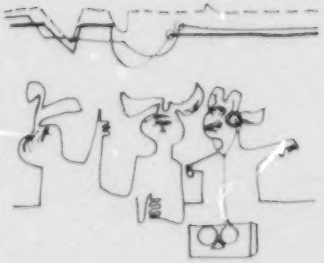


so as to better communicate your ideas to the ***student body as a whole***.

To accomplish this you will need to plan to ask those *If, What, and How* questions which will draw out your pupils.

To know what you have achieved you will want to evaluate your pupils' learning by developing criteria that allow you to see the differences in their achievements as a result of your lesson.

As you think of all this you will form teaching criteria so as to *stretch* your understanding of yourself as a learning teacher.



After you've taught your lesson and evaluated your pupils' work and your own actions and talk, you will have the opportunity to discuss your lesson with your peer and your supervisor so as to take their viewpoints into account in determining your future direction as a teacher.

During this summer we also wrote and published at our own expense a Teacher Learning Kit composed of the forms and supplementary material needed by the students in our program. My chapter in Taylor's book, Climate for Creativity called the "Dynamic Dimensions of Teacher Learning,"[9] reports our research findings during the year of 1966-67. We found there needed to be a language of teacher behavior for the dimension of "What," "Which," "How," and "If/Then" forms of inquiry. These four dimensions needed to be clearly separated from those teaching activity and learning problems involving the evaluative process characterized by the word "Why." We found also that teachers at all levels of experience had not in practice been clearly distinguishing between achievement and learning. Learning we defined as the capacity to improve performance in accordance with specific educational objectives relating to designated tasks. Thus, if we were rating students on only achievement, the ones who "jumped highest" so to speak would get the A's. We wished to shift the emphasis, at least with respect to the evaluation of teacher contribution to pupils, to those teachers who could enable students to learn to "jump higher" during a sequence of learning experience regardless of how high they were able to jump on their first attempts. This required the establishment of criteria to measure the learning of pupils in these areas of inquiry. To do this and also to create a foundation on which we could build a language of teacher behavior for the

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[9]Robert C. Burkhart, "Dynamic Dimensions of Teacher Learning," in Calvin Taylor, Climate for Creativity, Pergamon Publishing Company, New York, 1970.

evaluation of student learning, I formulated the Inquiry Grid in the summer of 1968.

This work was done under a small grant from the Eastern Educational Laboratory in Syracuse, New York for an across-discipline inquiry process system. In formulating the grid I focused upon the questioning processes because questions serve two important functions: (1) they help to determine the structure of the learning activity, and (2) they provide a starting point for the testing of the effectiveness of the activity in producing the desired learning. The mapping of this inquiry system did not start from scratch.

There is a large body of research, though it derives from different viewpoints, which does provide a base on which a comprehensive structure for the learning process may be built. Five approaches were considered. One way of building is to consider the taxonomies (Bloom, Krathwohl) which have already been developed with this very purpose in mind. They specify a sequence of learning purposes in a hierarchical form and constitute a useful map of objectives in the cognitive and affective domains. A second way is to consider a developmental analysis of human growth, of which Piaget's work is a helpful example. A third is to look specifically at the instructional sequence essential for organizing a lesson so that pupils learn to learn -- for example, the work that Gagne has undertaken. A closely related fourth approach is to consider the learning process as an elaboration of those steps man must take in order to solve problems. This approach was also employed by Gagne and is illustrated by those learning programs that begin with a rudimentary learning experience such as observation and move gradually upward to more complex and abstract mental functions.

A fifth way is to move to basic research and analyze intellectual functions by developing representative tasks through carefully designed test items, and then to factor these items into clusters of behavioral characteristics that represent the way man thinks. This work breaks down the intellect into discrete factors and has been Guilford's way of looking at the problem. This was an approach I had employed as early as 1960, and it lead to making in 1962 a factorial separation of "What" and "How" questioning forms from suppositional ways of inquiry.[10] The fact that there are at least five separate ways of viewing how man learns does not mean that the same referent is not being considered, or that these views are fundamentally antithetical to each other. Indeed, our attempt is to show through the development of an operational model that they are complimentary. Nevertheless, these investigators do have specialized sets of terms; they are dealing with somewhat different learning phenomena as a result of their viewpoints. The differences have the value of challenging workers in applied research to relate and utilize the diverse structures in the development of improved teaching-learning systems.

Our grid, as a working model, synthesizes these major views for operational purposes rather than theoretical ones. Operational research, as a form of educational engineering, tries to locate in theories those ideas which have particular promise and relevance for practice so as to translate

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[10]Robert C. Burkhart, Studies in Art Education, "The Interrelationship of Separate Criteria for Creativity In Student Teaching to Four Personality Factors," Vol. 3, No. 1, January 1962.

them into practice.

The particular terms placed upon the Grid were located in accordance with the following rationale. Entered directly on the vertical axis of the Grid was a condensed version of the affective and cognitive taxonomies of Bloom and Krathwohl. However, in the affective taxonomy it was essential to move the concept of preferring forward because it is already evident as a process used by new-born infants. The sensory taxonomy was formulated to interrelate with their work. The concern was also to develop as much internal consistency as possible, and to move from more firmly established distinctions to more tentative and theoretical considerations. Under each of these columns, Torrance's master concepts were placed as subheadings. His work, like mine, indicated factorially that "What" fluency, "How" flexibility, and "If/Then" originality are distinctive criteria for "creativity." His tests represent an attempt to define operationally these large behavioral categories; he had employed the word "suppositional" to describe the imaginatively productive acts of man.

When these findings were discussed at the Seventh National Conference on Research In Creativity (1968), Guilford and Torrance pointed out that symbolism is a separate factor in the structure of the intellect, is distinctly different from the WHAT and HOW factors in behavior. Conceptual activities are conceived by Guilford as largely <u>verbal</u>, and procedural ones largely <u>figural</u>. Torrance also conceives of conceptual activity as the basis for fluency and as predominantly concrete, that is, reality orientated. <u>Flexibility</u> is considered by Torrance to be a procedural trait involving factors of addition, subtraction, multiplication, and so on, which are the procedures

needed if an object is to be altered or improved.

Suppositional activities, however, seems to be the basis for originality because they require shifts in viewpoint or total reorganization and "transformation" of objects as concepts according to Guilford's factor analytic studies. On Guilford's and Torrance's tests the ability to ask suppositional questions or solve problems by generating a new viewpoint represented a different level of intellectual activity distinct from either conceptual or procedural thinking. Torrance, in fact, incorporated as Activity 6 "Unusual Questions" in his well known battery the Object Question Test that I had developed and employed from 1961 to '69 as a measure of suppositional inquiry capacities.[11]

The "Evaluative" column on the Inquiry Process Grid is related to Guilford - Implications - strata of his structure of the intellect, and Calvin Taylor's "Consequence-Learning" and Piaget's "Formal Operations." It does differ from their approaches in that more stress is placed in the Grid upon the employment of criteria as a means of resolving problems. In this respect it is not unlike a critical-thinking approach to education. Though I would agree with Gagne that problem-solving is the purpose underlying man's higher mental processes more than solving a problem is necessary in evaluative learning activities or alternative problem solutions. There is something creative about the discovery and eventual formulation of a

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[11] Torrance's discussion and review of his work with this version of my test is in his Manual describing the construction of his test battery. This is available with the tests from Personnel Press, Princeton, New Jersey, 1966.

workable criterion as guidelines to the evaluation of man's undertakings or investigations.

The Grid represented, then, a kind of synthesis of various approaches to learning theory so as to make it operational in a condensed form that might become the basis for a language of teacher behavior as strongly advocated by Donald Medley.[12] This language for operational purposes needed further clarification as to vocabulary, so I proceeded to formulate not only "Generic Questions" for each cell, but also a statement of their "Functions" and the "Means and Ends" essential to fulfilling that function. This was done in as simple a terminology as possible, keeping to the dictionary definition of common usage for the words included under the cell headings. I was surprised to learn how many of these words carried meanings in the dictionary somewhat different from those I had acquired from the behavioral sciences. Overall, I found this experience to be very rewarding in learning the structural purposes of everyday language systems. Each of the special academic subject areas, especially psychology and sociology, have defined these terms for their own research and theoretical purposes, and their special "shop talk" has resulted in quite different interpretations from those in common language usage. For instance, the word "cognitive" has special meaning in Bruner's system and still other meanings in interaction-analysis systems. I have tried to remove or avoid the special discipline's use of these terms by setting them back into

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[12] Donald Medley, "The Language of Teacher Behavior," Chapter 3 in Robert C. Burkhart, The Assessment Revolution, New York State Education Department, Division of Teacher Education and Certification, 1969.

a more usual context for talking with others.

The Inquiry Process Grid was first employed in 1967 as an analytical tool to break down kinds of behavior as they have been designated by Science -- A Process Approach (SAPA) for the Eastern Regional Institute for Education in Syracuse in order to get some indication of its operational potential and distribution. One kind of data that lends itself to this sort of analysis is the kinds of questions employed in the SAPA competency measures. By means of generic questions for each competency measure in Parts I-IV, an attempt was made to analyze the more than 100 activities by sorting each question under one of the headings on the grid.[13] Each question was then sorted independently by three different judges. The emphasis on questions is important in that they have two functions essential to learning: (1) they tend to determine the structure of the learning activity, and (2) they provide a key to the testing of that activity.

The results of this analysis indicate that the early grade level, Parts I and II of SAPA, do indeed emphasize sensory activities, whereas Parts III and IV for the upper grades concentrate on cognitive activities, especially those relating to application. Reading down the column, SAPA would appear to be particularly strong in procedural learning, both in sensory and cognitive areas. Thus, SAPA would appear to be properly designated as a process approach.

A second exercise of this nature was employed to cross-validate this

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[13]This analysis was done by R. C. Burkhart, J. R. Rogers, L. Jones, and M. A. Winger.

first descriptive examination of SAPA. The data employed for this investigation were those describing the lesson objectives for the program, as they appeared on the large chart of the SAPA curriculum hierarchy. Statements of the goals and objectives indicate SAPA to be more comprehensive as a program than its test suggests. For instance, its objectives indicate more suppositional activity than its test questions demonstrate.

This analysis of questions calls attention to the kinds of learning activities to which the Inquiry Process Grid makes a contribution. The first for SAPA would be to strengthen the suppositional column. More objectives of SAPA might be provided in the sensory and cognitive areas in reference to relating and transforming, both of which depend on analogy as one route to originality. This is important since many major contributions of scientists stem from analagous thinking.

Secondly, more work needs to be done in the affective domain. The connection between feeling like a scientist and the formation of scientific values needs to be developed in order to give more substance to these kinds of learning experiences, especially those related to developing and experiencing some values essential for scientific discovery and thought.

The third concern is to explore ways for increasing students' evaluative capacities of scaling, valuing, and synthesizing in relation to each of these processes of inquiry. This required the designing of instructional activities that relate to the formation and application of standards.

THE ACROSS DISCIPLINE USES OF INQUIRY PROCESSES FOR PERFORMANCE EDUCATION: PART THREE 1968-70

The word "performance" now became the focus of our inquiry-process program development and research. This was a time of modifying and extending our work through field tests with teachers in training in the classroom. Our hope for the Grid was that it would provide both experienced and novice teacher-learners with a useful means of evaluating for themselves their classroom performance. The following transcription was made by Donald Medley[14] with one of our novice teachers relating to our program's use of grid categories for training him in analysis of his lessons:

> Medley (to Jay): Can I ask you a question? When you're teaching, do you find it easy and natural to say, "Well now, I'll ask a question in this cell," or, "Now the child is operating in this cell"? As you go along, do you perceive the behavior in these terms, or do you have to sit down with a tape afterwards to find out what happened?
>
> Jay: I think the more we did it the better we got at it. We found quite a bit of consistency from day to day as we looked back from our first lessons. We made corrections, and we changed, but it's a workable piece of material.
>
> Medley: Are you always depending upon making an analysis afterwards?

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[14] Donald Medley, of Educational Testing Service, has been one of the major constituents and evaluators for this program during this period of development.

Jay: I see what you mean. That's something that came with time. As beginning student teachers, I'd have to say no. Our immediate impressions weren't always the same as our analysis. As we worked, as we progressed further and further and did more teaching, I think the two things came closer together. We could predict, for instance, how the lesson would be gridded.

Medley: You mean, you could tell its pattern during instruction?

Jay: Yes.

Medley: I'm thinking of a system's model for teaching, which talks about getting feedback, student growth, student changes, and so on. I'm wondering about whether an instrument like this can be used only to get feedback the day after when you're planning the next lesson, or if you can get constant feedback during the lesson. I think, from what you're saying, that you probably can use this in practice as a form of constant feedback.

Jay: Yes, but sometimes we needed to do tape analysis anyway in order to identify gap areas in children's behavior in our lesson. These reviews had a diagnostic function quite the opposite of knowing only what we did in our lesson -- sometimes what mattered was what we didn't do that the children need to learn.

Medley: This, of course, is the drama that I was trying to reach, that this kind of tool can be extremely valuable in teaching teachers, in helping teachers improve, in helping teachers mold their behavior in the

direction that they want to meet pupil's needs. This is what I was trying to get at. Let me say another thing. I was at a meeting about HEADSTART the other day, and they said to me that many of these children from disadvantaged backgrounds don't know how to fantasize, don't have the skill for fantasy play. Do you think that you could teach it to them this way?

Jay: Well, I'll put it this way. We found a direct correlation between our teacher statements and actions, and where we'd get student actions and statements in the same cell. In the nursery program, I did a lot of this fantasy-type work and made a lot of fantasy-type statements.

Medley: What do you know about yourself now that you've been through this process that you didn't know before?

Jay: Well, someone was talking earlier about personal style. Now, as a person, my style of living is something that I do from day to day, but I don't think that I'd ever have gotten the opportunity to carry this living over into teaching, and it's something that's kind of strange. When you begin student teaching, you start with an image, rather than with yourself, and this is what was a little different in this case and much better. Instead of starting with an image, I started with myself. As to style, when I'm teaching lessons like this, for instance, I was crawling on the floor and animating objects, and I used a lot of fantasy. My vocabulary became very similar to the three-year olds! Now, I

wasn't threatened. My style as a person became the same style that I had as a teacher, and this idea had never occurred to me before we got into this research situation. There weren't predetermined answers. We didn't have the feeling that Dr. Burkhart knew what the answer was before we started, and that was important to us as teachers and as people.

Medley: Jay, by some of your remarks you indicate that you were aware, or conscious, that you were trying to fit yourself as a person into the role of yourself as a teacher, or whatever you are in this particular situation. Did I understand you correctly? Is this something that you were conscious of when you were teaching three- and four-year-olds?

Jay: Probably it's a combination from the fifth grade teacher you liked when you were in primary school....

Medley: Oh, this is your mental picture of what a good teacher's like?

Jay: .....your methods courses, and as you begin to teach, your critic teacher. And quite often that image shouldn't be important.

Medley: Now, you saw yourself as being....

Jay: A person first. Yes. It is a very reflective type process.

Medley: I think it's because you got the process out there and were looking at it and not at yourself that you could make this rapid progress to a more mature level in your own identity as a teacher.

This conversation tends to exemplify the purposes of the program for teachers as providing a system for filling gaps in pupil learning needs. For instance, our observation of nursery schools in 1967-68 indicated that most of the children's behavior was classified only in the four cells of perceiving, doing, influencing, and preferring. These four kinds of activity might well be thought of as a behavioral description of the word "child." But as children do these things very well indeed without the help of adults, it is our belief that teachers in particular should enable students to learn those kinds of things they cannot on their own learn to do themselves. Medley pointed out that schools need to enable urban children to learn to fantasize or be suppositional in their play so that they may later be able to look at life situations from many different viewpoints.

We found in 1967-68 after analyzing the instructional formats used by novice teachers that they can plan lessons for new areas of concentration in accordance with student needs.[15] For instance, for urban children one student teacher employed two eggs -- one cracked and one whole -- on which she painted faces. The children empathized with the cracked one and asked the eggs, which the teacher moved on the tips of her finger, what had happened. This resulted in both the teacher and children engaging in three entirely new areas of inquiry -- empathizing, relating, and valuing. Again, the teachers' areas of inquiry statements were strikingly correlated with

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[15] Robert C. Burkhart, The Assessment Revolution, New York State Education Department, 1969. Note pages 168 to 192 relating to student-teacher learning. Available in ERIC microfilms and bound copy from the Office of Education.

the students' inquiry responses. The analysis of these second individual instructional sessions show that the same teacher can change instructional formats and that these changes in format can also be made by the students.

Our approach here was an in-depth one in which we concentrated on developing extensive information on individual teacher's learning and that of their students. We felt the need to get as close to the instructional needs of both teachers and their students as we could before starting on the development of large-group instructional or training programs. We were then, and wisely are still, fearful of the mechanicalness that enters into performance programs unless they concern themselves with the educational contribution of specific individuals.

At this time we weren't trying to work with any specific subject matter, so most of our work was done at preschool levels. But in 1968-69 we opened up a program conducted by Melissa Winger and John Rogers for groups of teacher learners and elementary school children through sixth grade as an experiment in across-discipline learning. The program was given in a spacious and imaginatively decorated room, which the school's children named the "Magic Room." It was a large room in which teacher learners developed lessons and instructional resource material that was intended to enable children to develop the abilities to deal with their own developmental problems in areas of inquiry usually omitted from their academic training.

Several findings emerged from this year's work of importance to us: (1) Teacher learners showed in comparison a somewhat broader range of inquiry in their regular subject matter lessons than in across-discipline development lessons. Teachers appeared to be more successful in employing these process

inquiry activities in subject matter related fields. Thus further separateness of process approach to education from content fields seemed unnecessary and somewhat artificial. (2) In the complete analysis of 100 lessons taught by the teacher learners in this program, out of a possible 1,500 occurrences only 8 instances occurred in which more than 4 percent of the behavior of children appeared in a cell in which no teacher behavior was evident. The odds are 187 to 1 of students engaging in a process of inquiry in the classroom when a teacher is not asking that type of question or making that type of response. This finding occurred again and again as we analyzed new lessons. Thus, there seems to be a cause and effect relation between teacher and student inquiry in the classroom. This clearly means that children and young adults will come to engage in only those areas of inquiry that their teacher engages in and no others. Thus, the range of inquiry the teacher makes available is important, especially if learners do need to experience all the forms of inquiry indicated by the Grid. With this finding in mind we moved to inservice training programs from K through grade 12 in all content areas.

In preparing for this inservice training program, we made one important change in the Grid. We added the "Qualitative" column because we recognized in transcribing and analyzing tapes the need for another set of categories, separating "Which" types of distinctions from Evaluative "Why" decision-making forms of inquiry. This column in the Grid was suggested by John Rogers. It has been very helpful in strengthening our judge reliability. Few questions have been raised since that time about the inclusiveness of these inquiry process categories for the analysis of classroom interactions

of students and teachers. In the discriminating and analysis areas in particular, there is a high frequency or percentage of the statements made by teachers. There appears to be a very natural progression or sequence also from asking "What is that" to engaging in a "Which is Which" discussion teachers use to make discriminations about a particular subject or object. Similarly, comprehending discussions move readily into analysis activities involving part-whole cause and effect thinking. Preference statements, also, make an easy transition to appreciative elaborations. So as far as functioning is concerned, these types of activities seem to fit well together as part of the logical sequencing of learning activities in academic fields. I therefore decided to order the columns of the grid by frequency of occurrence of use in the classroom rather than to arrange them on a basis of a hierarchy in intellectual and social development. It is hard to say which of these processes of inquiry are more fundamental and which are more advanced. We can, however, determine which ones occur more frequently and which appear to be more infrequently employed or available to us in our culture and in our classrooms.

In the 16 months between 1968 and the fall of 1970, we[16] engaged in the large-scale field testing of our inquiry process approach in suburban and in urban schools with inservice teachers at every grade level and in all content areas. Our most important early finding related to the frequency of occurrence of experienced teachers' use of the 15 inquiry processes in their classrooms.

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[16]These staff were myself, John Rogers, Alice Sprickman and Betty Rickicki.

This analysis was obtained after the teachers were fully aware of the need for all 15 processes, and they attempted to ask as wide a range of questions as possible to demonstrate their abilities in this respect. The "What and Which" processes of Comprehending, Analyzing, and Perceiving accounted for approximately 20 percent each or more than 60 percent of their questions; and those of Influencing and Discrimination account for 10 percent each or about 20 percent of their questions. Combined, these five traditional inquiry approaches consume over 80 percent of all instruction. They constitute the five cells that we have come to think of as the great iron cross of teaching. Of the remaining 10 cells, the largest percentage of questioning did not exceed 4 percent for applying and preferring, and all others were less than 2 percent of the total number asked. It is from this typical type of beginning, after observing this widespread pattern of inquiry in the classrooms of both urban and suburban teachers, that we attempted to form a system of instruction which would help them learn forms of interaction other than those they usually employ. In developing the necessary instructional system, we noticed that it was not until application exercises were employed that teachers can expand their ways of talking with students about their subjects. Thus, the fundamental purpose of this project was to provide ways of introducing a wider range of inquiry processes into daily teaching. It was hoped that this could be done in a manner which enabled teachers consciously to employ those processes they felt necessary to the learning of their students.

Pilot Program - Summer 1969

Two groups of teachers, 20 persons in each group, participated in this pilot program. Initially, there was demonstrated the need for much more structure employing definite, well defined and fully explained learning exercises. The final or reformulated pilot program indicated the teachers' interest in having more games and illustrative material relating to the use of the grid in the culture. Feedback from this group both at the conclusion of the workshop and in the follow-up interviews relating to their use of the inquiry process in their classrooms indicated the need for more application activities and illustrations relating to instruction in the classroom. Inquiry instruction needs the classroom as a laboratory for teacher learning with pupils if it is to be successful.

First Field Test - Fall 1969

This field test was conducted with 80 persons representing all content areas and grades K-12 in a suburban school district. It involved ten 2-hour meetings during the school day with groups of 4 to 8 persons and a 3-hour evening workshop once a week for 8 weeks. Application was stressed during the daytime meetings and familiarization exercises such as had occurred in the summer pilots were utilized in the evening sessions. The inservice day seminar meetings and classroom work with teachers and their students was done by our regular instructional staff; evening laboratory meetings were conducted by our laboratory assistant. Both approaches proved more satisfactory than the conducting of classes in usual classroom settings. The fact that all

activities took place within the school system and some in the teachers' classrooms was very helpful. Resources and illustrations from teachers who taught in the early elementary grades had been included, but middle school teachers found them, especially from the point of view of content learning, not helpful. Thus, we learned that teachers do not transfer easily instructional examples from one level to another in the school system. With the middle and high school teachers' help, we developed resources more appropriate for their upper grades. Some of the most exciting instruction occurred in areas such as mathematics and the sciences. At the conclusion of this workshop, the analysis of teacher questions indicated they could now ask questions related to their content areas in 11 of the 15 cells of the grid. Moreover, 9 out of 10 teachers indicated on an anonymous questionnaire that the program was very helpful for "getting out of teaching ruts."

Second Field Test and Transfer of the Program to an Urban School District - Spring 1970

An entirely different staff used the same resources in an urban school district to test their transferability to other teacher populations. This report is therefore concerned with the following kinds of information:

1. Scores on paper-pencil tests relating to the range of inquiry processes utilized by the urban teachers and a comparison of the achievement and actual classroom behavior of suburban teachers.

2. Scores achieved when teachers in urban schools consciously attempt to engage in specific types of inquiry. Such scores, which represent

competency, indicate whether teachers can designate those specific inquiry activities in which they intend to engage and whether they successfully obtain them.

In the results of the inquiry workshop given, 18 urban teachers were able to ask the percentage of questions indicated in Tables 1 and 3 as compared to those achieved by approximately 80 suburban teachers enrolled in a similar program during this time period. The urban teachers made strong gains in the four Affective areas of the grid most frequently omitted in the classroom. They are: Preferring -- 8.6 percent, Appreciating -- 9.5 percent, Empathizing -- 7.5 percent, and Valuing -- 3.4 percent. This constitutes 29 percent of their total activity. These same four cells would constitute less than 4 percent of an untrained teacher's behavior. It seems evident, too, that there is a real concern in some urban districts for the emotional welfare and enrichment of the child and that this program contributed substantially to this objective. Both urban and suburban teachers can engage in these kinds of activities in the classroom (Tables 1 and 2) after exposure to inquiry training. Urban teachers, however, apparently have difficulty engaging in Sensory and Cognitive kinds of activities that involve imaginative activities previously discussed by Medley and evaluative thought, particularly Transforming, Scaling, and Synthesizing. They did make, along with suburban teachers, gains in the imaginative area of Relating; suburban teachers were also weak in all three evaluative cells.[17]

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[17] Reliability of judge evaluation is available and in general is around .800 for most cells.

TABLE I

COMPARISON OF SUBURBAN AND URBAN TEACHERS
IN TWO INQUIRY PROCESS PROGRAMS - SUMMER 1969

	WHAT?	WHICH?	HOW?	IF/THEN?	WHY?
SENSORY	PERCEIVING High Suburban = 14.4% Urban = 12.6%	DISCRIMINATING High Suburban = 9.9% Urban = 8.6%	DOING Low Suburban = 2.1% Urban = 2.9%	RELATING Average Suburban = 4.2% Urban = 4.0%	SCALING (RATING) Low Suburban = 2.6% Urban = 1.7%
AFFECTIVE	PREFERRING Average Suburban = 7.7% Urban = 8.6%	APPRECIATING Average Suburban = 6.6% Urban = 9.5%	INFLUENCING Average Suburban = 7.6% Urban = 8.6%	EMPATHIZING Average Suburban = 5.7% Urban = 7.5%	VALUING Low Suburban = 1.7% Urban = 3.4%
COGNITIVE	COMPREHENDING Highest Suburban = 18.1% Urban = 19.0%	ANALYZING High Suburban = 10.0% Urban = 8.0%	APPLYING Average Suburban = 5.3% Urban = 5.7%	TRANSFORMING Low Suburban = 3.3% Urban = 0.6%	SYNTHESIZING Lowest Suburban = 0.7% Urban = 0%
	Suburban = 40% Urban = 40%	Suburban = 26% Urban = 26%	Suburban = 15% Urban = 17%	Suburban = 13% Urban = 12%	Suburban = 5% Urban = 5%

TABLE II

CORRESPONDING PERCENTAGE OF ACCURACY WHEN ATTEMPTING TO HIT A PARTICULAR CELL ACHIEVED BY URBAN TEACHERS

	WHAT?	WHICH?	HOW?	IF/THEN?	WHY?
SENSORY	PERCEIVING * 85.7%	DISCRIMINATING * 92.9%	DOING 30%	RELATING 45.4%	SCALING (RATING) 12.5%
AFFECTIVE	PREFERRING * 100%	APPRECIATING 63.6%	INFLUENCING * 75%	EMPATHIZING * 100%	VALUING 50%
COGNITIVE	COMPREHENDING * 81.8%	ANALYZING 67%	APPLYING 50%	TRANSFORMING 11.1%	SYNTHESIZING 25%

*Note: Here it is possible to achieve 100% in each cell. An acceptable batting average is 50%.

On the whole, urban teachers showed strength in 12 of 15 cells and also more than doubled the range of the usual teacher inquiry activity in the classroom. Some observations were also made in relation to notable differences in the sentence structure and vocabulary of elementary suburban and urban teachers. Urban teachers, probably because of the children with which they work, continuously employ short sentences with simple structure and very concrete examples. Suburban teachers tend to employ more elaborate vocabulary even in the very early grades, using more complex sentence structures and incorporating concrete and abstract materials in their dialogue with students. A further study should be made of basic differences in language styles of these teachers with an eye to those kinds of enrichment in language usage which might be helpful in urban situations.

An innovation of importance undertaken by the urban project was that of determining the competency of teachers in inquiry questioning formulation when the cell in which they were to ask questions was designated. This was a test of skill; Table II indicates their percentage of success in various cells. The task involved was to ask as many questions in each cell as they could think of in the time allowed. In reading the percentages, it should be remembered that a score of 50 percent or more is satisfactory.

It is interesting to note here that in the most frequently employed cells of Perceiving, Comprehending, and Discrimination, the success is 80 percent. It is also interesting to note that in Affective cells such as Preferring and Empathizing, urban teachers are 100 percent effective, and in the more difficult cells of Appreciating and Valuing they were 50 percent effective. For both districts stronger performance capacities are needed

in the Transforming, Scaling, Valuing, and Synthesizing cells. These cells are particularly difficult to learn to employ readily and required the development of intensive instructional exercises such as those now being used for the Difficult Cell Games.

When these teacher tests are compared with the item analysis of 40 video tapes done by a sampling of these suburban and urban groups, it is surprising how closely the questioning test parallels the actual proportions of the teachers' questioning activities in the classroom. In these classes they tried to achieve a wide range of inquiry processes. The only notable shift in test and actual behavior are Empathizing, Relating, and Valuing. The tests are then a valid indicator of how teachers do in fact behave in the classroom according to this sample after training.

Pupil behavior also correlates with teacher behavior with some interesting exceptions as to the proportion or ratio of activity on their part. This study indicates, as did a previous one, that a small number of teacher questions will get large numbers of pupil responses when Relating questions are asked:

	Percent	Ratio
Teacher	5.5	1
Pupil	18.9	3

This situation occurs because the teacher usually waits for several pupil associations in response to every relating question, such as "What is like a bird's nest?" The teachers tend to make nine (9.1%) influencing statements in the form of commands such as "sit down, now" with an emotional overtone to students to one made by a student. Parallel findings were evident,

TABLE III

A. RANGE OF QUESTIONS BY PERCENTAGE OCCURRING ON QUESTION ASKING TESTS

	Suburban		Urban	
1.	Comprehending	18.1%	Comprehending	19.0%
2.	Perceiving	14.4%	Perceiving	12.6%
3.	Analyzing	10.0%	Appreciating	9.5%
4.	Discriminating	9.9%	Discriminating	8.6%
5.	Preferring	7.7%	Preferring	8.6%
6.	Influencing	7.6%	Influencing	8.6%
7.	Appreciating	6.6%	Analyzing	8.0%
8.	Empathizing	5.7%	Empathizing	7.5%
9.	Applying	5.3%	Applying	5.7%
10.	Relating	4.2%	Relating	4.0%
11.	Transforming	3.3%	Valuing	3.4%
12.	Scaling	2.6%	Doing	2.9%
13.	Doing	2.1%	Scaling	1.7%
14.	Valuing	1.7%	Transforming	.6%
15.	Synthesizing	.7%	Synthesizing	0%

B. RANGE OF QUESTION AND STATEMENT OCCURRING ON VIDEO TAPES IN THE CLASSROOM

	Teacher		Pupil	
	Comprehending	26.0%	Comprehending	21.9%
	Perceiving	19.2%	Relating	18.9%
	Discriminating	9.1%	Analyzing	10.7%
	Influencing	9.0%	Appreciating	9.2%
	Analyzing	7.0%	Discriminating	9.1%
	Relating	5.5%	Applying	6.0%
	Preferring	5.5%	Perceiving	5.7%
	Appreciating	5.0%	Preferring	4.9%
	Applying	4.0%	Doing	2.6%
	Doing	3.1%	Empathizing	2.1%
	Empathizing	3.0%	Valuing	1.4%
	Transforming	1.3%	Transforming	1.4%
	Scaling	1.2%	Influencing	.97%
	Synthesizing	.08%	Synthesizing	.43%
	Valuing	.04%	Scaling	.4%

in an analysis of 100 lessons done by student teachers including those concerning relating and influencing. These replicated findings appear to be stable differences in pupil and teacher behavior patterns. The analysis here indicates that the inquiry process grid provides ways of looking at educational realities which are reasonably reliable, replicable, and valid. The instructional program designed does meet its specified goals and is a transferable or exportable one ready for wider distribution.